Service Manual

VL2400™ Series Wash Luminaires

02.9661.0010

VARI*LITE®

Express yourself.

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VARI✳LITE® products are protected by one or more of the following patents, and other pending patent applications worldwide:

U. S. Patents No. 6,123,436; 6,113,252; 6,046,861; 6,031,749; 6,011,640; 5,969,868; 5,959,768; 5,934,794; 5,882,107; 5,829,868; 5,825,548; 5,798,619; 5,774,273; 5,769,527; 5,758,956; 5,728,994; 5,640,061; 5,590,954; 5,454,477; 5,432,691; 5,367,444; 5,329,431; 5,307,295; 5,282,121; 5,278,742; 5,209,560; 5,186,536; 5,073,847; 5,010,459; 4,980,806; 4,972,306; 4,800,474; 4,779,176; 4,701,833; 4,602,321;

U. S. Design Patents No. 439,356; 420,332; 417,300; 415,301; 413,995; 377,338; 366,712; 359,574; 350,408; 347,113;

Australia Patents No. 693,691; 683,695; 667,109; 649,264; 646,588; 586,095; 576,400; 546,433;

Australia Design Patents No. 128,796; 128,795;

Canada Patents No. 2,070,670; 2,050,375; 1,270,675; 1,259,058; 1,181,795;

Canada Design Patents No. 81,234; 81,233; 76,046;

European (UK) Patents No. 0 652 400; 0 586 049; 0 565 218; 0 547 732; 0 534 710; 0 495 305; 0 474 202; 0 379 970; 0 253 082; 0 253 081; 0 248 974; 0 192 882; 0 140 994; 0 060 068;

Germany Patents No. 694 25 943.8; 693 14 122.0; 692 08 615.3; 692 07 692.1; 691 31 478.0; 691 21 029.2; 690 33 385.4; 37 89 166.9; 37 68 727.1; 37 51 804.6; 37 50 201.8; 35 87 270.5; 32 79 888.1; 32 74 291.6;

Germany Design Patents No. M 98 01 745.4; M 96 04 515.9; M 96 04 514.0; M 94 07 689.8; M 94 02 951.2; M 499 03 583.6; M 498 11 203.9; G 93 12 884.3;

Spain Patents No. 2 090 191; 2 084 289; 2 020 960; 0 548 328;

Spain Utility Model Patent No. 2.031.748;

Spain Design Patents No. 0.137.502; 0.137.501; 0.133.573;

Greece Patent No. 910.400.544;

Hong Kong Patents No. 965/1990; 285/1987;

Japan Patents No. 2,843,696; 2,059,669; 2,055,324; 2,002,168; 1,966,525; 1,889,481; 1,792,721; 1,770,241; 1,723,825; 1,683,007; 1,533,011;

Japan Design Patents No. 985,985-1; 985,985; 947,552; 945,436-1; 945,436; 1,106,089; 1,077,598; 1,072,598; 1,060,414; 1,002,123;

Korea Patents No. 76,310; 42,639; 283,770; 181,180;

Korea Design Patents No. 209,896; 209,895;

Mexico Patent No. 180,148;

Singapore Patents No. 663/90; 134/87;

Taiwan Patents No. 78,726; 66,975; 65,380; 28,275;

United Kingdom Design Registrations No. 2082526; 2072562; 2056387; 2056386; 2042174; 2038212; 2033108; 2029499.

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VL2400™ Series Wash Luminaire Service Manual

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Version as of: 11-Nov-02

Part number: 02.9661.0010 E

VL2400™ Series Wash Luminaire Service Manual
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How To Obtain Warranty Service

A copy of the Vari-Lite, Inc. Limited Warranty was included in the shipping package for this VARI✻LITE® product.

To obtain warranty service, please contact customer service at 1-877-VARI-LITE (1-877-827-4548) or customerservice@vari-lite.com and request a Return Material Authorization (RMA) for warranty service. You need to provide the model and serial number of the item being returned, a description of the problem or failure and the name of the registered user or organization. If available, you should have your sales invoice to establish the date of sale as the beginning of the warranty period.

Once you obtain the RMA, pack the product in its original packing material along with a copy of your invoice (if available) and write the RMA number legibly on or near the shipping address label. Return the unit, freight prepaid to:

Vari-Lite, Inc.
201 Regal Row
Dallas, TX 75247
Attention: Warranty Service

As stated in the warranty, it is required that the shipment be insured and FOB our service center.

Confidential Property Disclosure

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Compliance Notice

FCC This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with Vari-Lite system, service, and safety guidelines, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

CE

Declaration of Conformity

We declare, under our sole responsibility, that this product complies with the relevant clauses of the following standards and harmonized documents:

Safety

EN 60950: 1999 Safety Standard for Information Technology Equipment

EMC

EN55022A: 1998 Radiated and Conducted Emissions
EN50082-1: 1997 Generic Immunity Standard

We certify that VARI✳LITE products conform to the protection requirements of European council directives: 73/23/EEC (LVD) and 89/336/EEC (EMC)

Manual Revision History

PAGE NUMBER	CHANGE NUMBER
Title Page - xviii	E
1 - 200	E

VERSION	DATE
BASIC	03-Apr-00
Rev A	02-Jun-00
Rev B	10-Oct-00
Rev C	16-Aug-01
Rev D	30-May-02
Rev E	11-Nov-02

Safety Notice

It is extremely important to read ALL safety information and instructions provided in this manual and any accompanying documentation before installing and operating the products described herein. Heed all cautions and warnings during installation and use of this product.

Safety symbols used throughout this manual are as follows:

CAUTION advising of potential damage to product.

WARNING advising of potential injury or death to persons.

GENERAL INFORMATION PERTAINING TO PROTECTION AGAINST ELECTRICAL SHOCK, FIRE, EXPOSURE TO EXCESSIVE UV RADIATION, AND INJURY TO PERSONS CAN BE FOUND BELOW.

WARNING:
INSTRUCTIONS FOR CONTINUED PROTECTION AGAINST FIRE

1. VARI✻LITE® luminaires have been designed for use only with certain Philips and Osram HID lamps. Note lamp type (MSR400, MSR575HR etc.) before replacing lamps. Installing another type of lamp may be hazardous.
2. Luminaires may be mounted on any type of surface as long as mounting instructions are followed. See instructions detailed in this manual.
3. Replace fuses with same type and rating only.
4. Note distance requirement from combustible materials or illuminated objects for VARI✻LITE® luminaires.

WARNING:
INSTRUCTIONS FOR CONTINUED PROTECTION AGAINST ELECTRICAL SHOCK

1. VARI✻LITE® luminaires are designed for dry locations only. Exposure to rain or moisture may damage luminaire.
2. Disconnect power before servicing any VARI✻LITE® equipment.
3. Servicing to be performed by qualified personnel only.

WARNING:
INSTRUCTIONS FOR CONTINUED PROTECTION AGAINST EXCESSIVE EXPOSURE TO UV RADIATION

1. Many VARI✳LITE® luminaires use an HID type lamp that produces UV radiation. DO NOT look directly at lamp.
2. It is hazardous to operate luminaires without lens or shield. Shields, lenses, or ultraviolet screens shall be changed if they have become visibly damaged to such an extent that their effectiveness is impaired. For example, by cracks or deep scratches.

WARNING:
INSTRUCTIONS FOR PROTECTION AGAINST INJURY TO PERSONS

1. Exterior surfaces of the luminaire will be hot during operation. Use appropriate safety equipment (gloves, eye protection, etc.) when handling and adjusting hot equipment and components.
2. Luminaires will have a hot lamp when operating. Disconnect power and allow lamp to cool before replacing.
3. Arc lamps emit ultraviolet radiation which can cause serious skin burn and eye inflammation. Additionally, arc lamps operate under high pressure at very high temperatures. Should the lamp break, there can exist a danger of personal injury and/or fire from broken lamp particles being discharged.
4. Wear eye protection when relamping.
5. Appropriate safety equipment (gloves, eye protection) should be used when handling damaged lamps.
6. If lamp is touched with bare hands, clean lamp with denatured alcohol and wipe with lint-free cloth before installing or powering up the luminaire.
7. The lamp shall be changed if it has become damaged or thermally deformed.

WARNING:
RF INTERFERENCE

1. This is a Class A product. In a domestic environment this product may cause radio interference, in which case, the user may be required to take adequate measures.

ARC LAMP CHARACTERISTIC CONSIDERATIONS

1. Arc lamps require a period of time to relight after a power interruption or a severe voltage dip. In some cases, lamp will automatically relight after it has cooled depending on Lamp Power-Up State (L ON/ LOFF) system configuration setting.
2. Burning position is Universal.

Sicherheitshinweise

Es ist äußerst wichtig, ALLE Sicherheitsinformationen und -hinweise in diesem Handbuch und dem beiliegenden Informationsmaterial zu lesen, bevor Sie die hierin beschriebenen Produkte installieren bzw. bedienen. Halten Sie bei der Installation und dem Einsatz dieses Produkts alle Warnhinweise und Vorsichtsmaßnahmen ein.

Folgende Sicherheitssymbole werden in diesem Handbuch verwendet:

VORSICHT - weist auf möglichen Produktschaden hin.

WARNUNG - weist auf mögliche Körperverletzung und Lebensbedrohung hin.

NACHSTEHEND FINDEN SIE ALLGEMEINE HINWEISE ÜBER SICHERHEITSVORKEHRUNGEN GEGEN ELEKTROSCHOCK, FEUER, ÜBERHÖHTE UV-STRAHLUNG UND KÖRPERVERLETZUNGEN.

WARNUNG:
HINWEISE ZUM FEUERSCHUTZ

1. VARI✻LITE®-Scheinwerfer sind ausschließlich für den Einsatz mit bestimmten Philips und Osram HID-Lampen geeignet. Achten Sie auf den Lampentyp (MSR400, MSR575HR etc.), bevor Sie die jeweiligen Lampen ersetzen. Die Installation eines anderen Lampentyps kann gefährlich sein.
2. Scheinwerfer können auf jeder beliebigen Oberfläche montiert werden, solange Sie die Montageanweisungen befolgen. Detaillierte Hinweise finden Sie in diesem Handbuch.
3. Ersetzen Sie Sicherungen nur mit Sicherungen vom gleichen Typ und gleicher Stärke.
4. Beachten Sie die Einhaltung des erforderlichen Sicherheitsabstandes der VARI✻LITE®-Scheinwerfer von brennbarem Material oder beleuchteten Objekten.

WARNUNG:
HINWEISE ZUM SCHUTZ GEGEN ELEKTROSCHOCK

1. VARI✻LITE®-Scheinwerfer eignen sich ausschließlich für trockene Standorte. Regen oder Feuchtigkeit können die Scheinwerfer beschädigen.
2. Unterbrechen Sie die Stromzufuhr, bevor Sie mit der Arbeit an VARI✻LITE®-Geräten beginnen.
3. Die Geräte sollten nur von qualifiziertem Personal gewartet werden.

WARNUNG:
HINWEISE ZUM SCHUTZ GEGEN ÜBERHÖHTE UV-STRAHLUNG

1. Viele VARI✻LITE®-Scheinwerfer verwenden einen HID-Lampentyp, der UV-Strahlen abgibt. SCHAUEN SIE NICHT direkt in die Lampe.

2. Es ist gefährlich, Leuchten ohne Linsen oder Blenden zu bedienen. Blenden, Linsen oder Ultraviolettschirme müssen ausgetauscht werden, sofern deren Schutzwirkung durch sichtbare Beschädigung (z. B. Sprünge oder Schrammen) eingeschränkt ist.

WARNUNG:
HINWEISE ZUM SCHUTZ GEGEN KÖRPERVERLETZUNGEN

1. Bei Betrieb sind die Außenflächen der Scheinwerfer heiß. Verwenden Sie bei der Bedienung von aufgeheizter Apparatur die jeweils geeignete Sicherheitsausrüstung (Handschuhe, Augenschutz etc.).
2. Bei Betrieb der Scheinwerfer ist die Lampe heiß. Unterbrechen Sie die Stromzufuhr und lassen Sie die Lampe abkühlen, wenn Sie diese austauschen.
3. Bogenlampen senden ultraviolette Strahlen aus, die Hautverbrennungen und Augenentzündungen verursachen können. Der Betrieb von Bogenlampen erfolgt unter Hochdruck und bei hohen Temperaturen. Sollte die Lampe zerbrechen, besteht die Gefahr von Körperverletzung bzw. von Feuer, das von Lampenteilen ausgelöst werden kann.
4. Tragen Sie beim Austausch der Lampen einen Augenschutz.
5. Die geeignete Sicherheitsausrüstung (Handschuhe, Augenschutz) sollte beim Umgang mit beschädigten Lampen verwendet werden.
6. Wenn die Lampe mit bloßen Händen berührt wird, reinigen Sie sie mit denaturiertem Alkohol und einem flusenfreien Tuch, bevor Sie die Scheinwerfer installieren oder in Betrieb nehmen.
7. Wenn die Lampe beschädigt oder durch Hitzeeinwirkung deformiert ist, muß diese ausgetauscht werden.

WARNUNG:
HF-INTERFERENZ

1. Es handelt sich um ein Produkt der Klasse A. In einer Wohnumgebung kann das Produkt Hochfrequenzstörungen verursachen. In diesem Fall müssen eventuell geeignete Maßnahmen getroffen werden.

BESONDERHEITEN VON BOGENLAMPEN

1. Bogenlampen benötigen eine gewisse Zeitdauer, um nach einem Stromausfall oder einem Spannungsgefälle wieder aufzuleuchten. In einigen Fällen wird die Lampe nach Abkühlung automatisch wieder aufleuchten, je nach der Systemkonfigurationseinstellung des Lampeneinschaltungsstatus (L ON/ LOFF).
2. Die Brennposition ist Universal.

Notes de sécurité

Avant de procéder à l'installation des produits décrits dans ce guide et de les mettre en marche, il est extrêmement important de lire TOUS les renseignements et TOUTES les directives de sécurité contenues dans ce guide ainsi que toute documentation jointe. Tenir compte de tous les avertissements et suivre toutes les précautions pendant l'installation et l'utilisation de cet appareil.

Les symboles de sécurité utilisés dans ce guide sont les suivants :

ATTENTION Ce symbole annonce que l'appareil risque d'être endommagé.

AVERTISSEMENT Ce symbole annonce qu'il y a risque d'accident grave ou même fatal.

CETTE SECTION CONTIENT DES INFORMATIONS GÉNÉRALES POUR SE PROTÉGER CONTRE LES DÉCHARGES ÉLECTRIQUES , LES INCENDIES, L'EXPOSITION EXCESSIVE AUX RAYONS UV ET TOUT AUTRE ACCIDENT POUVANT ENTRAÎNER DES BLESSURES.

AVERTISSEMENT:
DIRECTIVES POUR SE PROTÉGER CONTRE LES INCENDIES

1. Les luminaires VARI✻LITE® ont été conçus pour être utilisés uniquement avec certaines lampes Philips et Osram HID. Vérifier le type de lampe (MSR400, MSR575HR etc.) avant de remplacer les lampes. L'installation d'un autre type de lampe peut poser un danger.
2. Les luminaires peuvent être fixés sur tout type de surface tant que les directives de montage sont respectées. Voir les explications détaillées dans ce guide.
3. Ne remplacer les fusibles qu'avec ceux du même type, ayant les mêmes caractéristiques.
4. Vérifier la distance à respecter entre les matériaux combustibles ou les objets illuminés et les luminaires VARI✻LITE®.

AVERTISSEMENT:
DIRECTIVES POUR SE PROTÉGER CONTRE LES DÉCHARGES ÉLECTRIQUES

1. Les luminaires VARI✻LITE® sont conçus pour une utilisation au sec uniquement. Une exposition à la pluie et à l'humidité risque d'endommager le luminaire.
2. Débrancher l'appareil avant de procéder à la révision de tout matériel VARI✻LITE®.
3. Les révisions doivent être effectuées uniquement par des personnes qualifiées.

AVERTISSEMENT:
DIRECTIVES POUR SE PROTÉGER CONTRE UNE EXPOSITION EXCESSIVE AUX RAYONS UV

1. Plusieurs luminaires VARI✳LITE® utilisent une lampe de type HID qui produit des rayons UV. NE PAS fixer son regard sur la lampe.
2. L'utilisation des luminaires sans lentille ou blindage pose des risques. Tous blindages, lentilles ou écrans ultraviolet visiblement endommagés au point que leur efficacité en est affectée doivent être remplacés, par exemple s'il y a des fissures ou de profondes rayures.

AVERTISSEMENT:
DIRECTIVES POUR SE PROTÉGER CONTRE LES ACCIDENTS POUVANT ENTRAÎNER DES BLESSURES

1. Les surfaces externes du luminaire deviennent brûlantes quand l'appareil est en marche. Pour manœuvrer ou ajuster des appareils brûlants et leurs composants, se protéger suffisamment (gants, protection pour les yeux, etc.).
2. La lampe du luminaire est brûlante lorqu'il est en marche. Débrancher le courant et attendre que la lampe ait refroidi avant de la remplacer.
3. Les lampes à arc émettent des rayons ultraviolets pouvant causer de graves brûlures sur la peau et une inflammation des yeux. De plus, les lampes à arc fonctionnent sous haute tension à de très hautes températures. Si la lampe se casse, les particules de la lampe cassée peuvent causer blessures et/ou incendie en s'éparpillant.
4. Se protéger les yeux pour remplacer la lampe.
5. Utiliser des appareils de protection appropriés (gants, protection des yeux) pour manier des lampes endommagées.
6. Si la lampe a été touchée avec des mains nues, la nettoyer avec de l'alcool dénaturé et l'essuyer avec un chiffon non-pelucheux avant d'installer ou de brancher le luminaire.
7. Si la lampe a été endommagée ou a reçu une déformation thermique, elle doit être remplacée.

AVERTISSEMENT:
INTERFÉRENCE RF

1. Cet appareil est de Classe A. Dans un environnement domestique, cet appareil peut causer des interférences radio, et si c'est le cas, l'utilisateur peut avoir à prendre des mesures adéquates.

CONSIDÉRATIONS DES CARACTÉRISTIQUES DE LAMPES À ARC

1. Après une interruption de courant ou une baisse importante de voltage, les lampes à arc mettent du temps avant de se rallumer. Dans certains cas, la lampe se rallumera automatiquemet après s'être refroidie. Cela dépend de la manière dont le système est réglé pour le statut de mise en marche de la lampe (L ON/ LOFF).
2. La position Brûler est Universelle.

Aviso sobre Seguridad

Es muy importante leer TODA la información e instrucciones sobre seguridad que se indica en este manual así como en los documentos adjuntos antes de instalar y operar los productos descritos. Se debe prestar atención a todos los avisos y advertencias durante la instalación y uso de este producto.

Los símbolos de seguridad usados en este manual son los siguientes:

CUIDADO, indica posibles daños al producto.

ADVERTENCIA, indica posibles lesiones o muerte a las personas.

LA INFORMACIÓN GENERAL RELACIONADA A LA PROTECCIÓN CONTRAGOLPES DE CORRIENTE ELÉCTRICA, INCENDIO, EXPOSICIÓN EXCESIVA A RADIACIÓN ULTRA VIOLETA Y LESIONES A LAS PERSONAS SE PUEDE ENCONTRAR SEGUIDAMENTE:

ADVERTENCIA:
INSTRUCCIONES PARA PROTECCIÓN CONTINUA CONTRA INCENDIO

1. Las luminarias VARI✻LITE® han sido diseñadas para ser usadas solamente con algunas lámparas HID Philips y Osram. Tome nota del tipo de lámpara (MSR400, MSR575HR etc.) antes de reemplazarla. Instalación de otro tipo de lámpara puede ser peligroso.
2. Las luminarias se pueden instalar en cualquier tipo de superficie siempre que se sigan las instrucciones de instalación. Vea las instrucciones detalladas en este manual.
3. Reemplaze los fusibles solamente con los del mismo tipo y especificación.
4. Tome nota de los requerimientos de distancia de materiales combustibles u objetos iluminados para las luminarias VARI✻LITE®.

ADVERTENCIA:
INSTRUCCIONES PARA PROTECCIÓN CONTINUA CONTRA CHOQUE ELÉCTRICO

1. Las luminarias VARI✻LITE® están diseñadas solamente para lugares secos. La exposición a la lluvia o humedad pueden dañar la luminaria.
2. Desconecte la energía antes de dar servicio a cualquier equipo de VARI✻LITE®.
3. El servicio debe ser realizado solamente por personal calificado.

ADVERTENCIA:
INSTRUCCIONES PARA PROTECCIÓN CONTINUA CONTRA LA EXPOSICIÓN EXCESIVA DE RADIACIÓN ULTRA VIOLETA

1. Muchas luminarias VARI✳LITE® usan un tipo de lámpara HID que produce radiación UV. NO mire directamente a la lámpara.
2. Es peligroso operar luminarias sin lentes o protectores. Debe cambiar los protectores, lentes o pantallas ultravioletas si se aprecia que han sido dañadas, y que su efectividad pudiera estar deteriorada. Por ejemplo, si tuvieran rajaduras o raspaduras profundas.

ADVERTENCIA:
INSTRUCCIONES PARA PROTECCIÓN CONTRA LESIONES DE PERSONAS

1. Las superficies exteriores de las luminarias están calientes durante su operación. Use un equipo de seguridad apropiado (guantes, protección para los ojos, etc.) cuando haga ajustes en el equipo y componentes que están calientes.
2. Cuando las luminarias están en operación la lámpara estará muy caliente. Desconecte la energía y deje que la lámpara se enfríe antes de reemplazarla.
3. Las lámparas de arco emiten radiaciones ultravioletas que pueden ocasionar serias quemaduras a la piel e inflamación a los ojos. Además, las lámparas de arco operan a alta presión y muy alta temperatura. Si la lámpara se rompe, puede existir el peligro de lesiones al personal o un incendio ocasionado por las partículas de la lámpara rota que se caen.
4. Use protección para los ojos cuando vuelve a colocar una lámpara nueva.
5. Use un equipo de seguridad apropiado (guantes, protección para los ojos, etc.) cuando trabaje con lámparas dañadas.
6. Si toca la lámpara con las manos, limpie la lámpara con alcohol desnaturalizado y con tela sin pelusas antes de instalar o volver a conectar la luminaria.
7. Cambie la lámpara si está dañada o deformada termicamente.

ADVERTENCIA:
INTERFERENCIA RF

1. Este es un producto de Clase A. En el ambiente de la casa este producto puede ocasionar radiointerferencia, en cuyo caso, el usuario debe tomar las medidas adecuadas.

CONSIDERACIONES SOBRE LAS CARACTERÍSTICAS DE LA LÁMPARA DE ARCO

1. Las lámparas de arco requieren un período de tiempo para volver a iluminarse después de una interrupción de energía o de una severa caída de voltaje. En algunos casos, la lámpara se volverá a iluminar en forma automática después que se ha enfriado dependiendo de la configuración del sistema de energía de la lámpara (L ON / L OFF) (L encendida / L apagada).
2. La posición de encendido es universal.

安全性に関する注意事項

ここに記載されている製品を取り扱う場合は、まず本マニュアルおよび付属のマニュアルの安全性に関する情報と説明をすべてお読みください。また、実際に本製品を取り付けたり使用する際には、すべての注意事項および警告に留意して作業してください。

本マニュアルでは、以下の安全マークを使用しています。

注意：製品に損傷を与える危険性があります。

警告：人身事故につながる危険性があります。

感電、火災、UV 放射に対する過度の露出、および人身事故を防ぐための一般的な情報については、以下の説明をお読みください。

警告：
火災の発生を防ぐためのヒント

1. VARI*LITE® 照明器具は、PhilipsおよびOsramのHIDランプを使用するように設計されています。ランプを交換する際は、ランプの種類（MSR400、MSR575HR など）を確認するようにしてください。他の種類のランプを取り付けると危険です。
2. 照明器具は、本マニュアルの指示に従って操作するかぎり、どのようなタイプの表面にでも取り付けることができます。詳細については、本マニュアルを参照してください。
3. ヒューズを交換する場合は、同じヒューズ（同じ種類、同じクラス）を使用してください。
4. VARI*LITE® 照明器具は、可燃性物質または他の光源から必要な距離だけ離して配置してください。

警告：
感電を防ぐためのヒント

1. VARI*LITE® 照明器具は、乾燥した環境で使用するように設計されています。雨で濡れる場所や湿気の多い場所に取り付けると、照明器具が傷むことがあります。
2. VARI*LITE® 照明器具を修理点検する場合は、必ず先に電源を切ってください。
3. 照明器具の修理点検は、資格を持つ技師のみが行うようにしてください。

警告：

過度の **UV** 放射にさらされないためのヒント

1. VARI*LITE® 照明器具の多くは､UV 放射を生ずる HID タイプのランプを使用しています。ランプを直視することは避けてください。
2. レンズまたはシールドを使わずに照明器具を点灯すると危険です。レンズ、シールド、紫外線画面は、ひび割れや深い引っかき傷などにより、その効力が損なわれるようになったら取り替えるようにします。

警告：

人身事故を防ぐためのヒント

1. 照明器具が点灯しているときは、その外側が熱くなります。熱くなった器具やコンポーネントを取り扱う際には、適切な防具（手袋や保護用眼鏡）を使用してください。
2. 照明器具が点灯しているときは、そのランプが熱くなります。ランプを交換する場合は、照明器具の電源を切り、ランプの温度が下がるまで待ってください。ランプの裏ぶたをあけると、遮断スイッチが働いて、ランプの電源が切れる場合があります。
3. アーク灯は紫外線を放射します。この紫外線によって、ひどい火傷を負ったり、目の炎症を起こすことがあります。さらに、アーク灯は、高圧高温の状態で光を発します。そのため、万一アーク灯が破損すると、飛び散った破片で人身事故や火災が発生する危険性があります。
4. 再点灯するときには、保護用眼鏡を着用してください。
5. 損傷したランプを取り扱う場合は、適切な防具（手袋や保護用眼鏡）を着用してください。
6. 手袋を着用せずに直接手でランプを触った場合は、変性アルコールを使ってランプをきれいにし、糸くずの出ない布で拭いてから照明器具を取り付け、電源を入れるようにします。
7. 傷がついたランプや熱によって変形したランプは取り替えてください。

警告：

RF 干渉

1. 本製品は Class A に分類されます。本製品は、家庭環境において無線干渉を起こす可能性があります。その場合、使用者は適切な処置を取らなければならないことがあります。

アーク灯の特性

1. 停電後または大きな電圧ディップ後にアーク灯を再点灯する場合は、しばらく時間をおくようにしてください。Lamp Power-Up State （L ON/ L OFF）システム設定によっては、温度が下がったときに自動的に再点灯される場合もあります。
2. アーク灯は点光源です。

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Introduction

About This Manual

This manual provides descriptions, repair procedures, and illustrated parts breakdowns for all configurations of the VL2400™ Series Wash Luminaire. The manual is intended for use by Vari-Lite personnel and by Vari-Lite's customers/clients.

WARNING: It is important to read ALL accompanying safety and installation instructions to avoid damage to the product and potential injury to yourself or others.

This manual covers the following models:

Model	Part Number
VL2411™ Wash Luminaire	20.9661.0001.01
VL2412™ Wash Luminaire	20.9661.0001.02
VL2413™ Wash Luminaire	20.9661.0001.03
VL2414™ Wash Luminaire	20.9661.0001.04
VL2415™ Wash Luminaire	20.9661.0001.05
VL2416™ Wash Luminaire	20.9661.0001.06

Note: Performing maintenance procedures contained in this manual may void the product warranty. Refer to the Vari-Lite, Inc. Limited Warranty card included in the shipping package for this VARI✻LITE® product.

Additional Documentation

A support webpage for VL2000 series luminaires is available at www.vari-lite.com (follow the Support link).

A users manual is available for installation and operation of the VL2416 wash luminaire. This manual is available in both printed and electronic (PDF) formats.

- VL2416 Wash Luminaire Users Manual (02.9661.0001).

Customer Service

Our Goal

At Vari-Lite, we are committed to providing you the highest quality in customer service. Our comprehensive resources are available to help your business succeed and ensure you get the full benefit of being a Vari-Lite customer. Whether your needs are telephone/troubleshooting assistance, product training or technical service, our full-time staff of experienced professionals are on-hand to provide support.

How to Reach Us

For assistance in your area, call the dealer from which your product(s) were purchased.

or

Contact an Authorized Service Center.

or

Contact the Vari-Lite Customer Service Department, 9am - 6pm CST Monday through Friday, at the following:

phone: 1-877-VARI-LITE (1-877-827-4548)
fax: 214.630.5867
email: customerservice@vari-lite.com

Additional Resources

For additional resources and documentation, please visit our website at: www.vari-lite.com and follow the Support link.

Technical Bulletins and Notices

Technical bulletins concerning the latest changes to VARI*LITE equipment are issued from the Dallas, Texas USA office. They are documentation supplements that contain procedures for equipment upgrades, retrofits, and repairs not found in the existing manuals. Operator technical bulletins are also issued to document changes in control software. Technical bulletins are integrated into the appropriate equipment manuals as those manuals are revised. Bulletins are categorized by assembly or subassembly, and identified by a number such as S2K-001 (VL2000 Series Luminaire Technical Bulletin number 1).

Technical notices are also issued from the Dallas, Texas USA office. They are non-procedural documents that contain information regarding product support issues, current equipment problems, software bugs, and documentation corrections. All technical notices begin with the prefix TN and are numbered sequentially, such as TN-138 (Tech Notice number 138).

CHAPTER 1.

Description

This chapter provides an overview of luminaire features, components and operations.

- **Features**
- **Component Descriptions**
- **Principles of Operation**

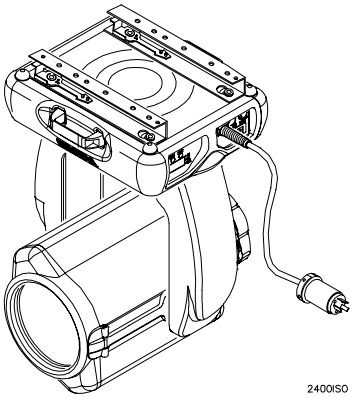
SERVICE

Features

Overview

The VL2400 series wash luminaire was manufactured in six different configurations - VL2411, VL2412, VL2413, VL2414, VL2415, or VL2416. The configuration is based on whether the luminaire contains an incandescent or arc (either 575* or 1200 watt) source and whether the luminaire contains a beam spreader mechanism or utilizes a fixed collimated beam. The model number can be found next to the power switch.

* Operated at 625 watts.



Configurations

	VL2411	VL2412	VL2413	VL2414	VL2415	VL2416
1200 W Incandescent (1000W Japan/Europe)	♦	♦				
575 W Arc*			♦	♦		
1200 W Arc					♦	♦
Beam Spreader		♦		♦		♦
Collimated Beam	♦		♦		♦	

* Operated at 625 watts.

Standard Features

All VL2400 series wash luminaires have the following standard features:

- DICHRO*TUNE™ radial color changer which employs enhanced dichroic color filters to produce smooth, full spectrum color crossfades. The mechanism allows independent blue, amber and magenta color control.
- An internal mechanical douser which provides intensity control and strobing.
- An upper enclosure that houses the control electronics as well as a power factor corrected arc power supply or an SCR dimmer appropriate to the particular lamp source.
- Control by DMX512 protocol.
- Two truss hook brackets for versatile hanging configurations.

Specific Features

Each individual configuration has the following features:

VL2411 Luminaire

- 1200 watt incandescent source. (1000 watt, Japan and Europe.)
- Collimated beam type.

VL2412 Luminaire

- 1200 watt incandescent source.
- Beam spreader mechanism which provides a rapid change between a focused, high intensity beam or uniform wash.

VL2413 Luminaire

- 575 watt arc source (operated at 625 watts).
- Collimated beam type.

VL2414 Luminaire

- 575 watt arc source (operated at 625 watts).
- Beam spreader mechanism.

VL2415 Luminaire

- 1200 watt arc source.
- Collimated beam type.

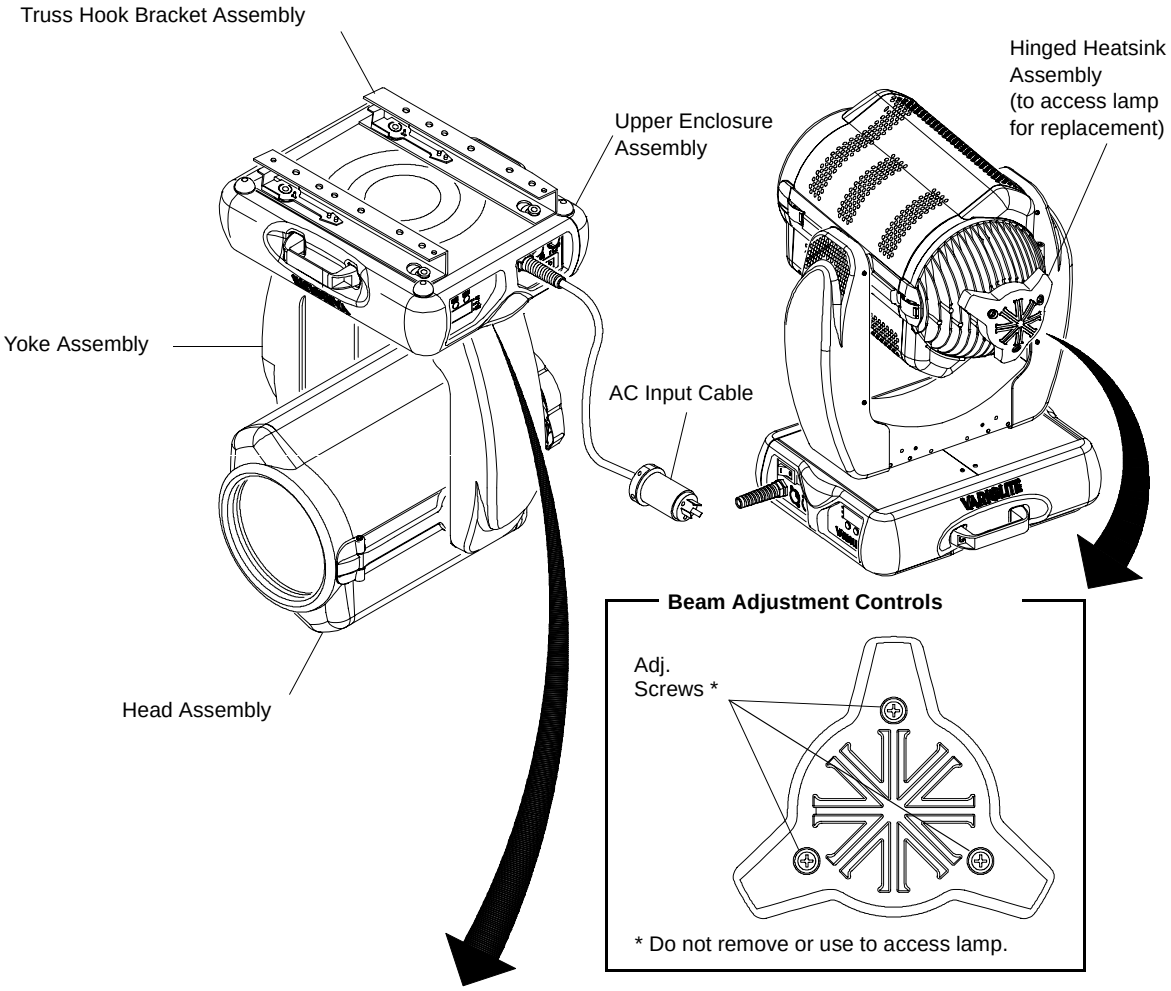
VL2416 Luminaire

- 1200 watt arc source.
- Beam spreader mechanism.

Component Descriptions

External Components

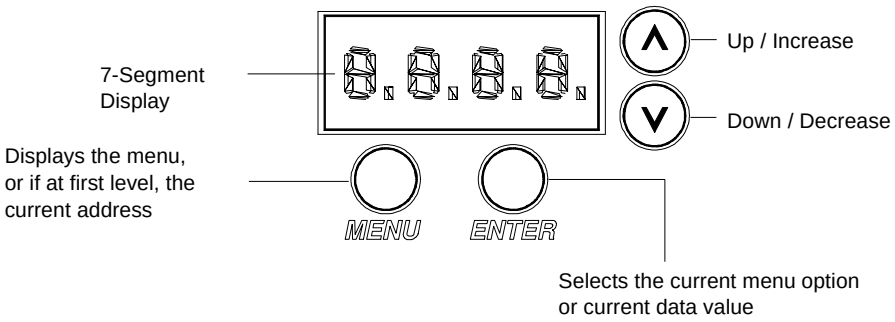
The following illustration shows major luminaire components and controls.



Menu Display

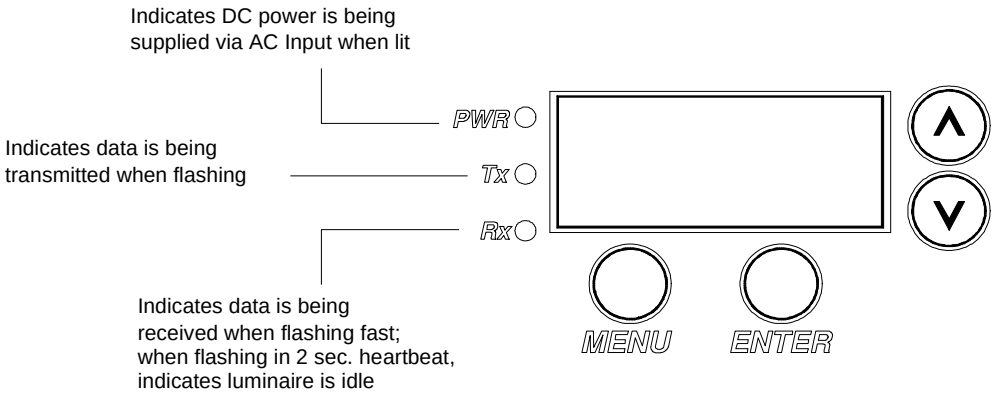
The Menu System Display is used to access the menu system, which is a programmable set of commands used to address, operate, and test the luminaire.

The menu system is controlled by four buttons. These buttons function as follows:


7-Segment Display
Up / Increase
Down / Decrease
Displays the menu, or if at first level, the current address
MENU
ENTER
Selects the current menu option or current data value

LED Indicators

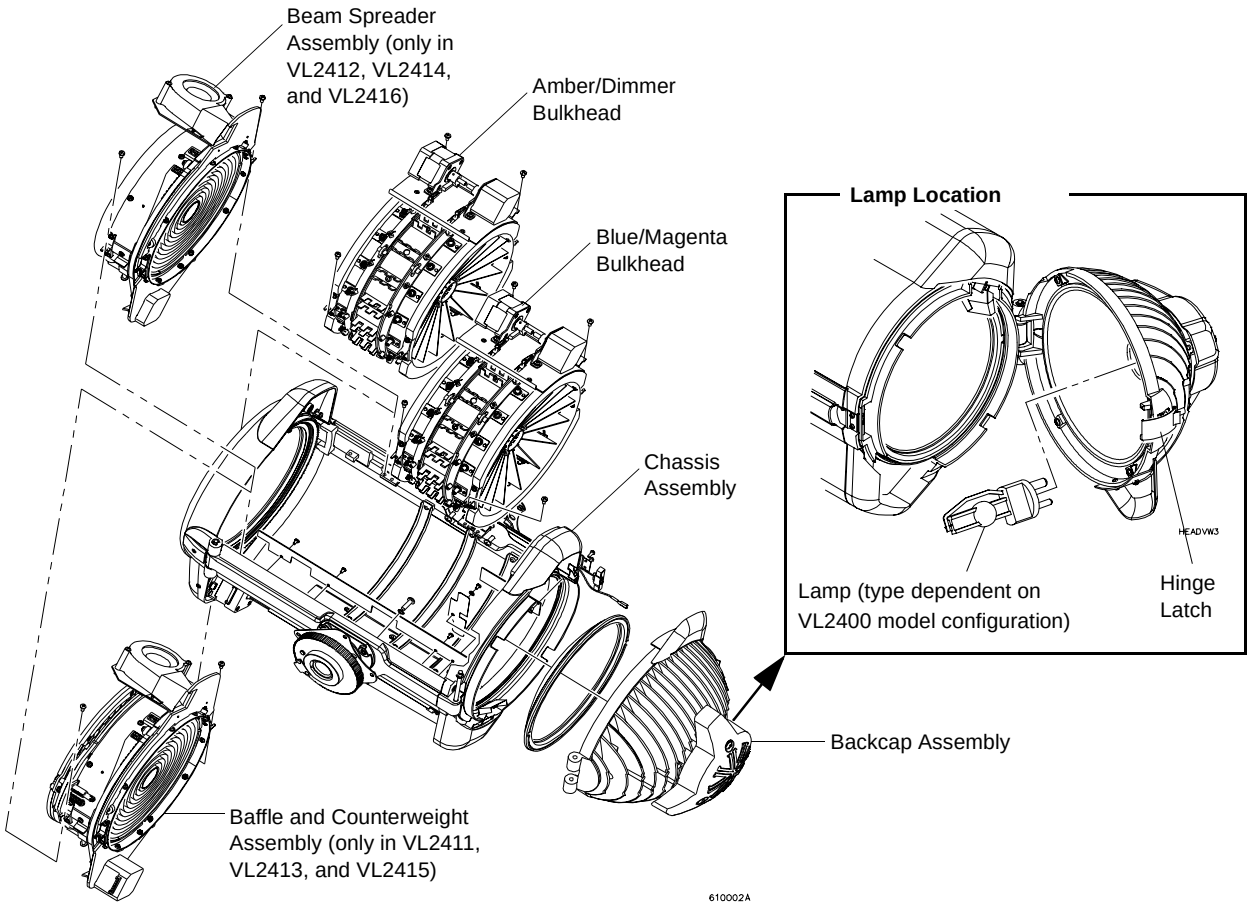
The LED indicators report the status of power and data to the luminaire.

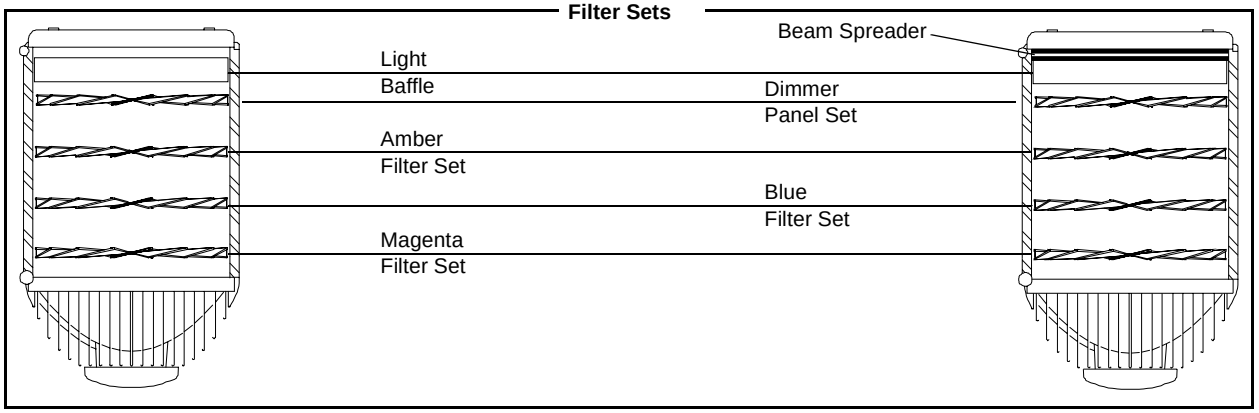

Indicates DC power is being supplied via AC Input when lit
PWR
Indicates data is being transmitted when flashing
Tx
Rx
Indicates data is being received when flashing fast; when flashing in 2 sec. heartbeat, indicates luminaire is idle
MENU
ENTER

Head Components

The following illustration shows the major sub-assemblies which are located in the luminaire head assembly.

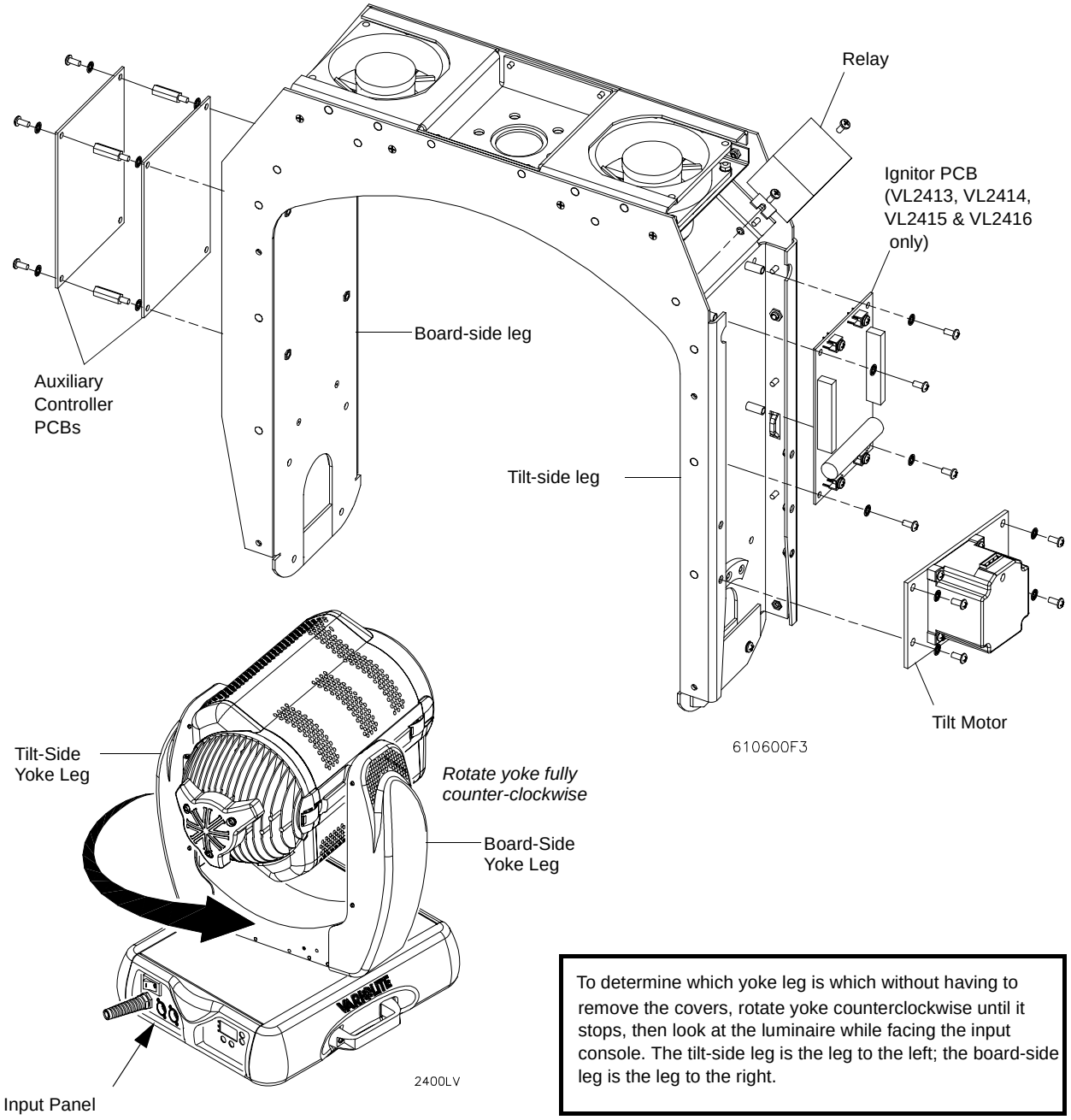
NOTE: Yoke and enclosure not shown for clarity.





Yoke Components

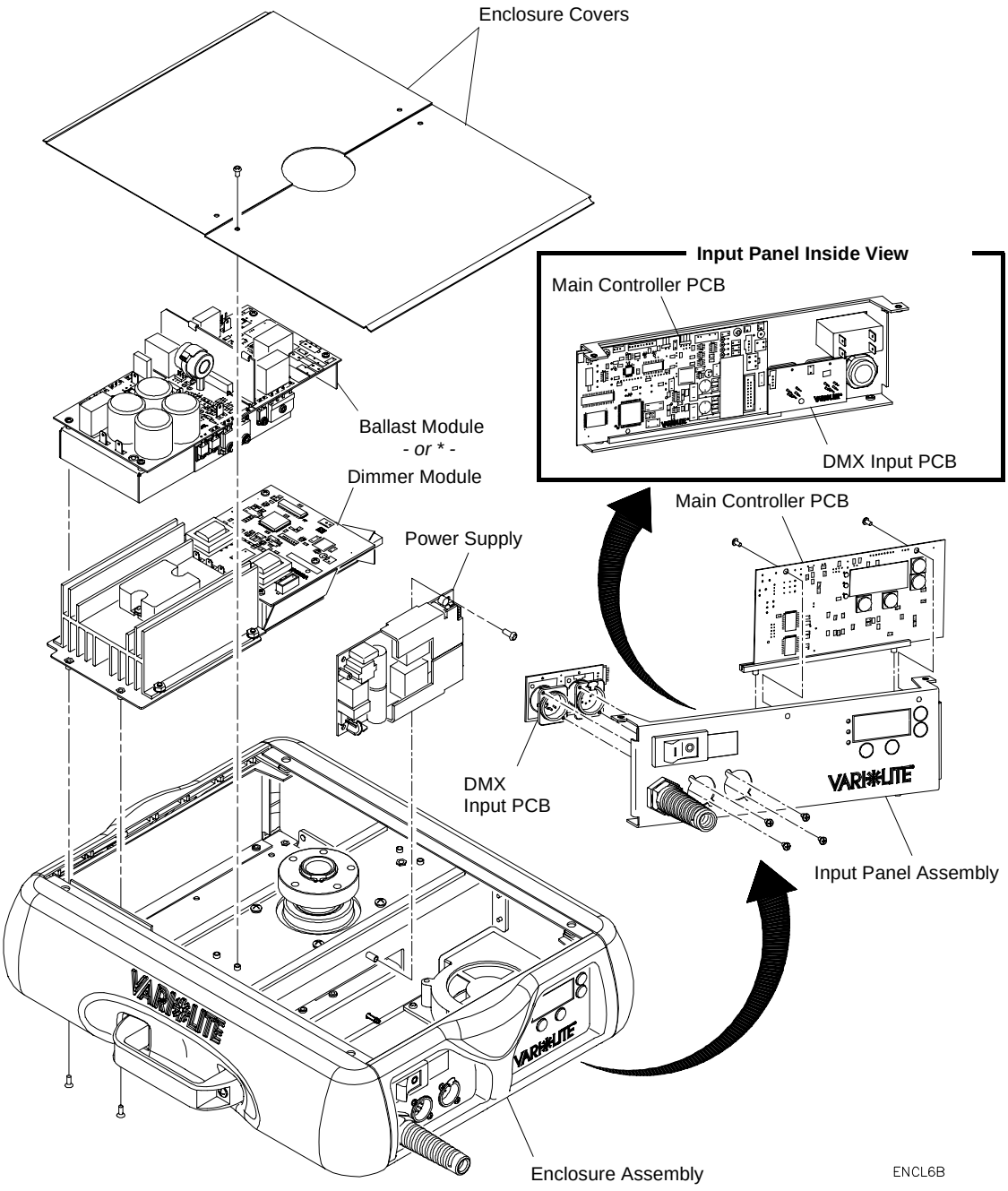
The following illustration shows the major sub-assemblies which are located in the luminaire yoke assembly. (Head and enclosure not shown for clarity.)



To determine which yoke leg is which without having to remove the covers, rotate yoke counterclockwise until it stops, then look at the luminaire while facing the input console. The tilt-side leg is the leg to the left; the board-side leg is the leg to the right.

Enclosure Components

The following illustration shows the major sub-assemblies which are located in the luminaire enclosure assembly. (Yoke and head assemblies not shown for clarity.)



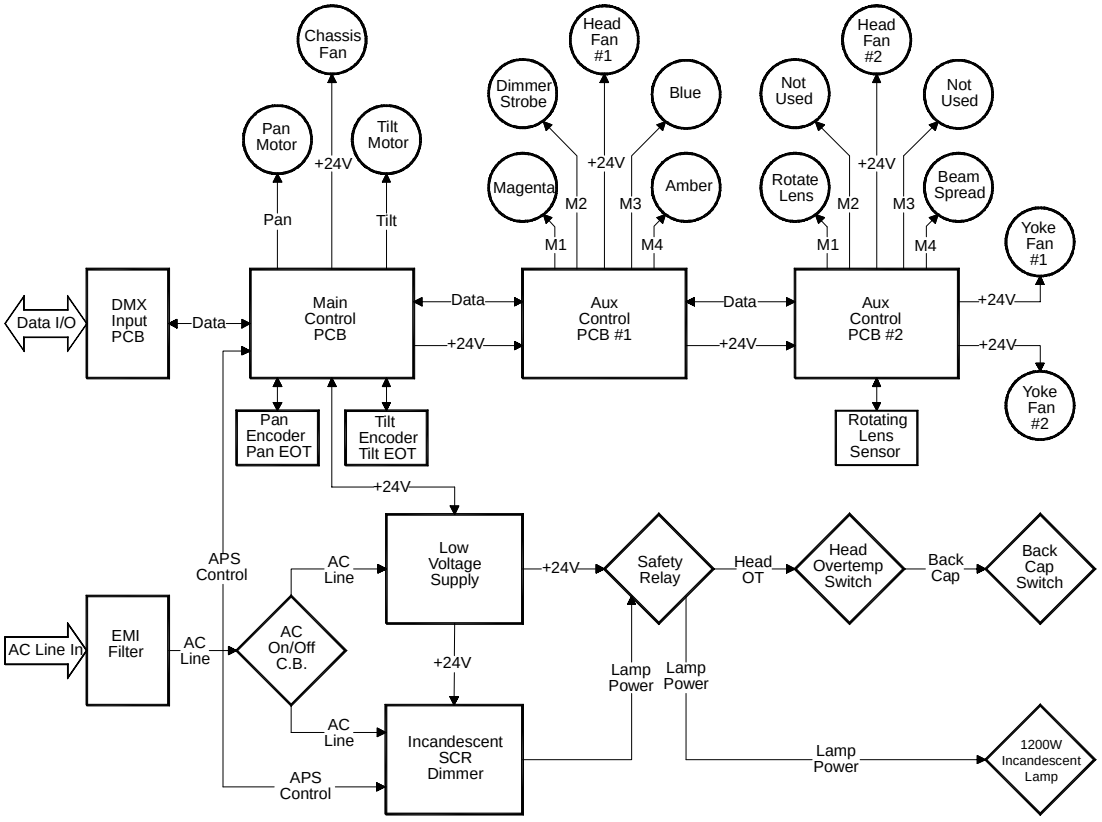
* Depending on arc or incandescent configuration.

Principles of Operation

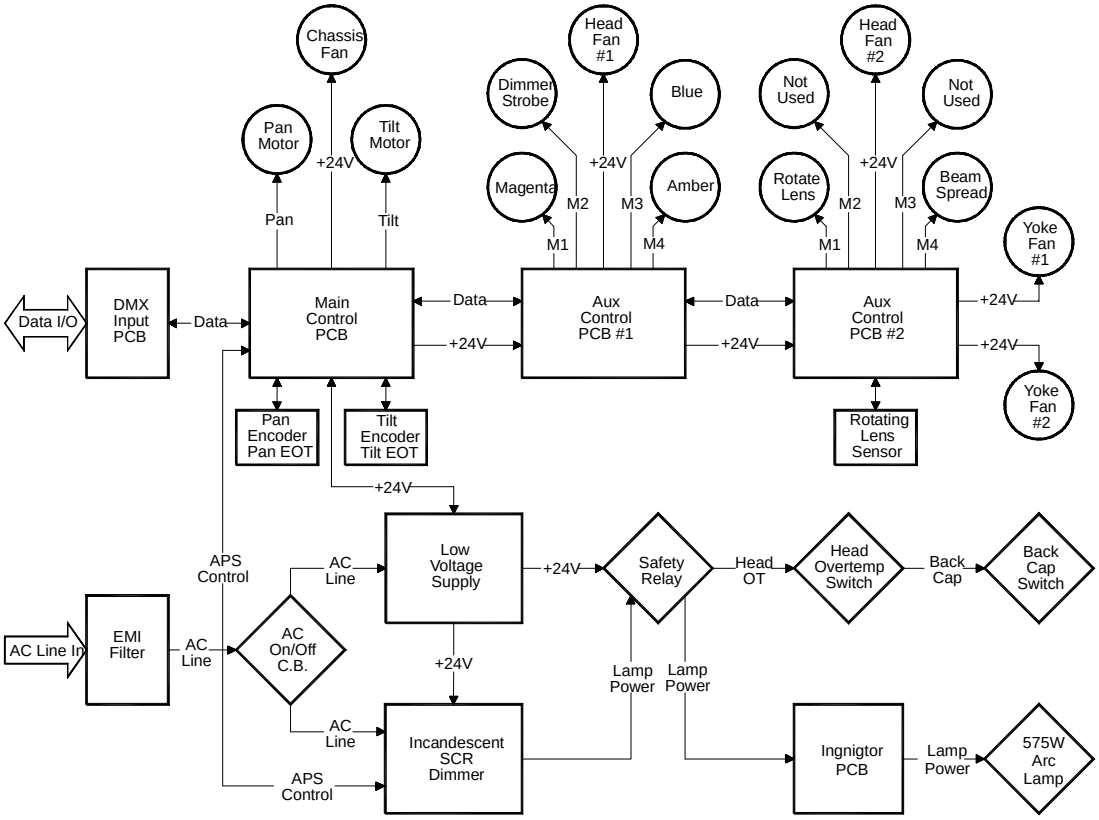
Power and Data Flow Diagrams

The following diagrams show how data and power are distributed in the different configurations of the luminaire.

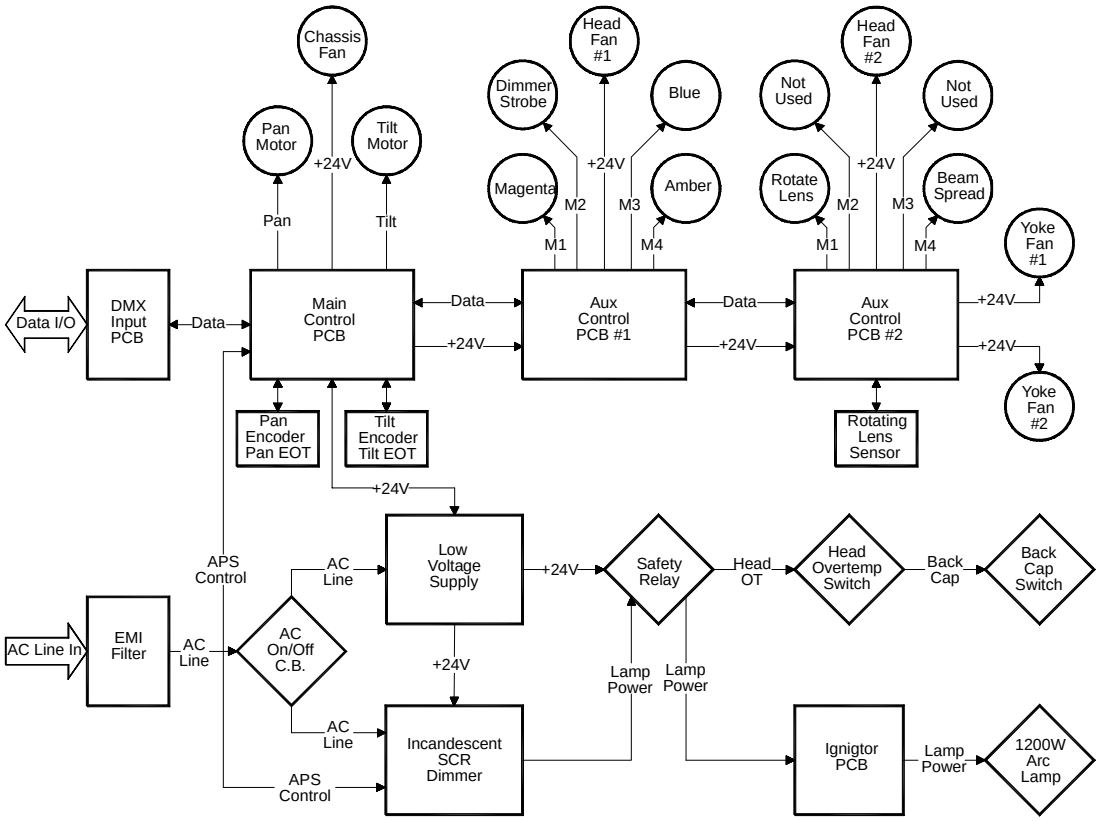
VL2411 and VL2412 Power and Data Flow Diagram



VL2413 and VL2414 Power and Data Flow Diagram



VL2415 and VL2416 Power and Data Flow Diagram



Notes

CHAPTER 2.

Maintenance

This chapter contains test, service, and standard maintenance procedures.

- **Testing**
- **Special Considerations**
- **Maintenance Procedures**

SERVICE

Testing

Testing Software

Testing software is available in all Series 2000 luminaires through the luminaire's menu system **TEST** function.

For information on specific tests and test parameters, see the VL2416 User's Manual (VL Part no. 02.9661.0001).

When running tests on multiple luminaires, a loopback connector is required at the final luminaire in the link and a female termination connector is required at the "master" luminaire.

Note: After 10 seconds of inactivity, the menu display will change to the default state showing the address.

Move Disable

The **Move** option is available in the test menu. This allows for pan/tilt functions to be disabled so that the luminaire can be placed in any position for testing without movement occurring. In order to regain full control of the luminaire, **Move** will need to be enabled after testing.

Note: When setting the **Move** option to disable, luminaires linked by a loopback connector will have pan and tilt disabled for all the luminaires that are linked.

Lamp

The **Lamp** option is also available in the test menu. This option sets the lamp intensity to 100% and will adjust the diffusion to produce a tight beam. Pan/Tilt are disabled while using the **Lamp** option, and pan/tilt settings will be restored upon exit of the **Lamp** feature.

Note: When setting the **Lamp** option on luminaires linked by a loopback connector, pan and tilt will be disabled for all the luminaires that are linked.

To run tests:

Step 1. Press [Menu].

Step 2. Press [Up] / [Down] arrows until **TEST** appears. Press [Enter].

Step 3. Use [Up] / [Down] arrows to select a parameter to test.

Step 4. Press [Enter] to run test.

Step 5. Press [Menu] to stop test at any time.

Special Considerations

Configuring Main Controller Board

When performing maintenance or troubleshooting procedures on Series 2000 luminaires, it may be necessary to configure the Main Controller Board (MCB) for installation. When moving an MCB from one luminaire to the other, different jumper configurations exist and must be set correctly in order for the luminaire to operate.

The Main Controller Board (MCB) contains two blue jumpers.

Programming Jumper - J1 (For Vari-Lite engineering use.)

The jumper at J1 is necessary and must be in the correct position in order for the luminaire to operate. Do not change the configuration of jumper J1. **Figure 2-1**.

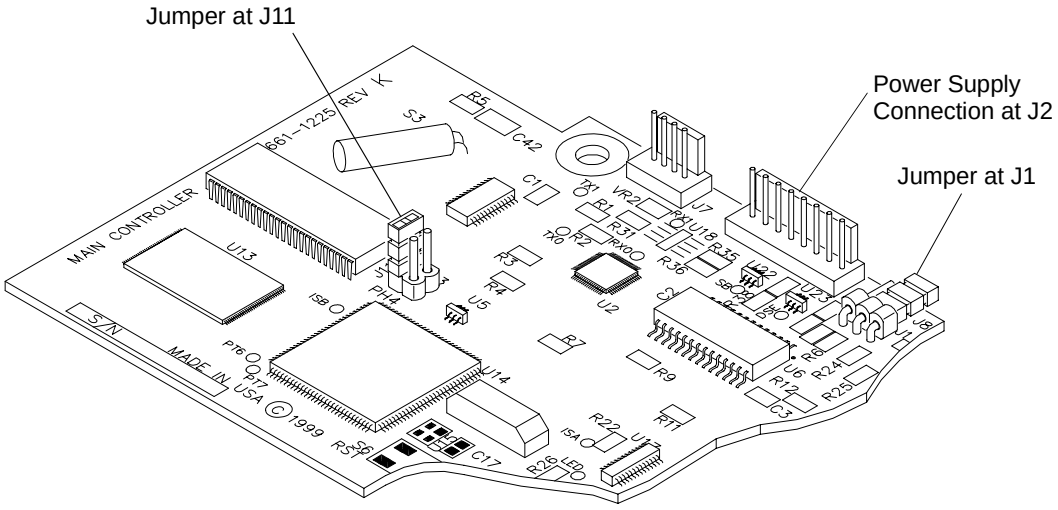


Figure 2-1: Jumper Locations on MCB

Luminaire Type Jumper - J11

The jumper at J11 configures the luminaire type between VL2000 spot, VL2000 wash and VL2400 wash. For VL2000 spot or VL2400 wash luminaires, it is fitted to non-active pins. (This inactive setting is the default or shipping configuration.) For VL2000 wash luminaires, it is fitted to the active pins.

Power Supply Connection - J2

The power supply connection at J2 sets the luminaire type according to the power supply output. (VL2400 wash luminaire - 1200W / VL2000 spot luminaire and VL2000 wash luminaire - 700W). If the power selection setting and the luminaire type setting jumper (J11) do not correspond, the luminaire will not operate properly.

Jumper Configuration

To configure jumper:

Determine which type luminaire the MCB is to be installed in, and configure jumper according to **Figure 2-2**.

Note: If luminaire will not calibrate or operate after MCB replacement, check jumper setting and download new software.

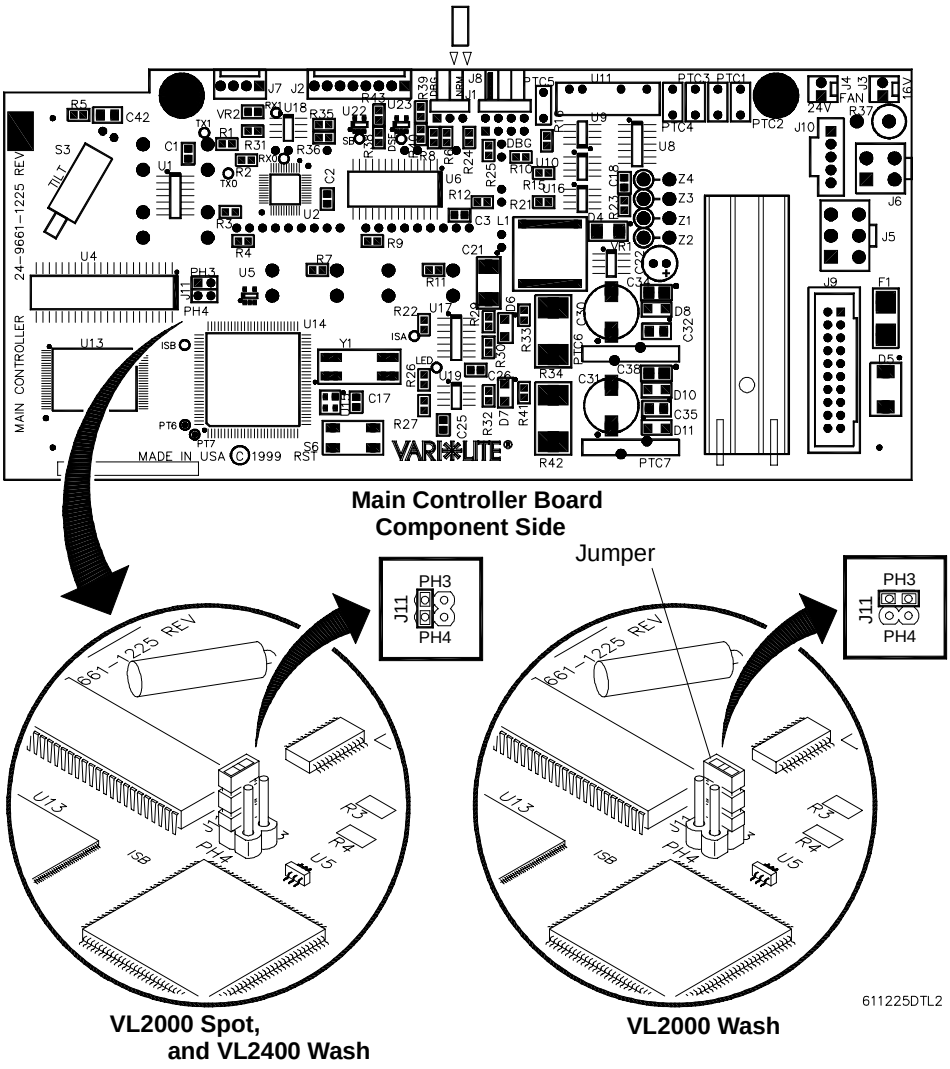


Figure 2-2: MCB Jumper Configuration.

Maintenance Procedures

Head Assembly

This section provides removal and replacement procedures for components found in the luminaire head assembly.

Lamp Replacement

Parts:

VL2411/VL2412		
71.2526.0100	1EA	LAMP, 1000W, 100V *or*
71.2526.0230	1EA	LAMP, 1000W, 230V *or*
71.2529.0120	1EA	LAMP, 1200W, 120V
VL2413/VL2414		
71.2528.0575	1EA	LAMP, ARC, 575W
VL2415/VL2416		
71.2528.1200	1EA	LAMP, ARC, 1200W

Tools:

Screwdriver, #2 Phillips
Cotton gloves

To remove and replace lamp:

Step 1. Disconnect luminaire AC input cable from power source.

WARNING: Allow lamp to cool before replacing.

Step 2. At backcap assembly unlatch hinge and swing open. **Figure 2-3**.

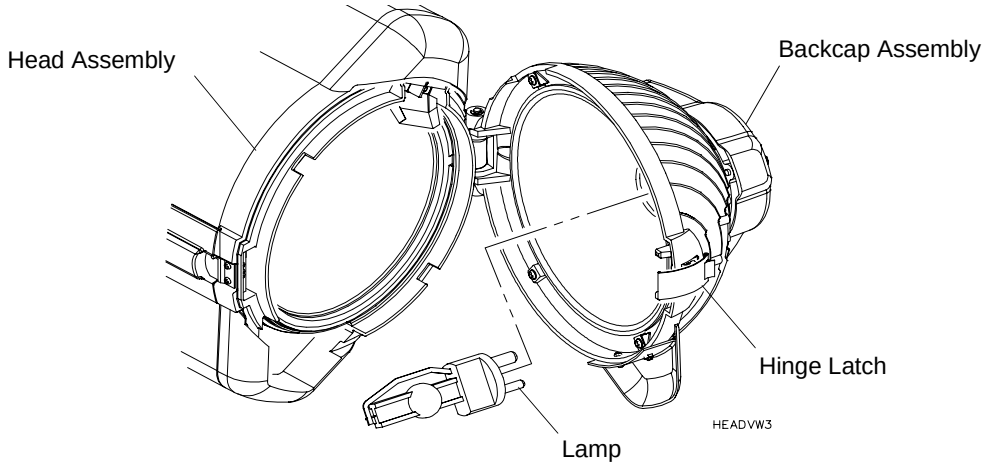


Figure 2-3: Lamp Replacement

CAUTION: Wear cotton gloves or other covering while servicing lamp. Touching lamp glass with bare fingers will leave oil and cause the lamp to explode or burn out early. If touched, use alcohol to thoroughly clean glass.

Step 3. Remove lamp by pulling straight out of socket.

Step 4. Install new lamp, pressing firmly into socket.

Step 5. Close and latch backcap assembly.

Step 6. Align lamp. (Refer to next procedure.)

Align Lamp for Flat Field (Arc Models Only)

After a new lamp is installed, it will be necessary to align the lamp to optimize the beam. Screws located at the luminaire's backcap will allow adjustment.

WARNING: Backcap and adjustment screws will be HOT during lamp operation. Wear gloves and/or use tools to prevent burns.

To Align lamp for arc lamp luminaires:

Step 1. Set intensity to 100%

Step 2. Position beam on a white wall at a distance of 10' to 20'.

Step 3. Using console or internal luminaire menu controls, make beam as narrow as possible.

Step 4. Using three adjustment screws, adjust hot spot to center of beam.

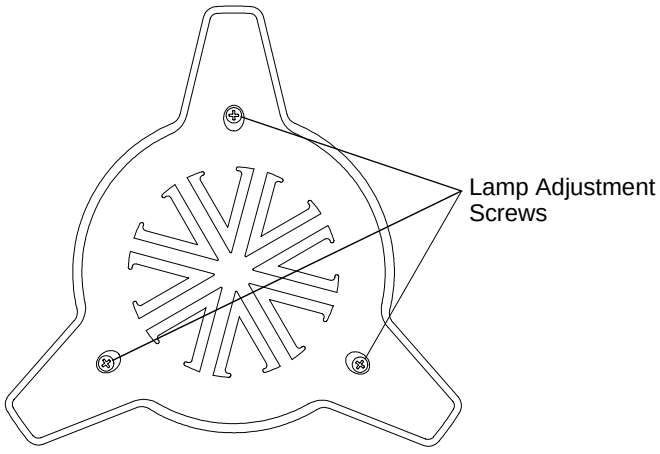


Figure 2-4: Lamp Alignment

Front Glass Replacement

Parts:
as needed

42.5002.0004	1 EA	GLASS, FRONT, CLEAR
42.5002.0005	1 EA	GLASS, FRONT, STIPPLE
42.5002.0006	1 EA	GLASS, FRONT, MED. FLOW 8-ROW
42.5002.0007	1 EA	GLASS, FRONT, MED. FLOW 10-ROW
42.5002.0008	1 EA	GLASS, FRONT, MED. FLOW 12-ROW
42.5002.0009	1 EA	GLASS, FRONT, VERY WIDE FLOOD-BUXOM

Tools:
Cotton gloves

To remove and replace front glass:

Step 1. Disconnect luminaire AC input cable from power source.

Step 2. At front ring assembly, unlatch hinge and swing open. **Figure 2-5**.

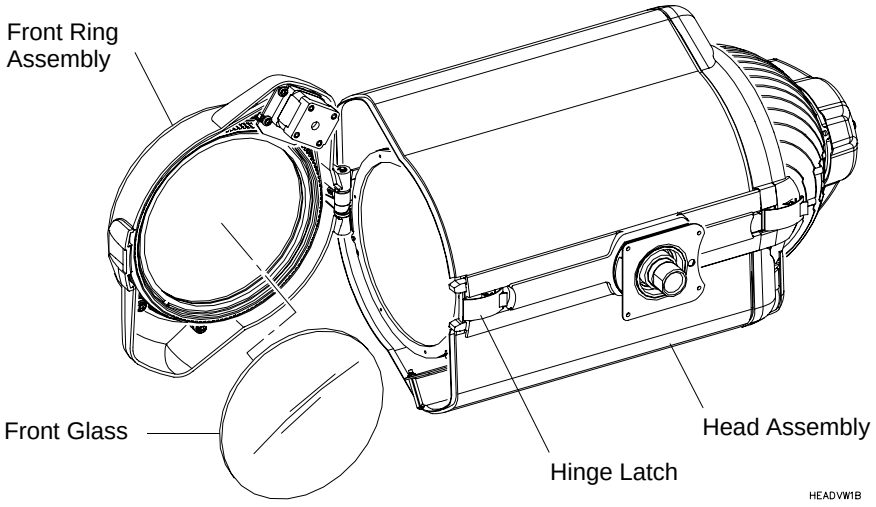


Figure 2-5: Removing Front Glass

WARNING: Wear cotton gloves or other covering while handling front glass. If dirty, clean with common glass cleaner and a soft, lint-free cloth.

Step 3. At front ring assembly, carefully press front side of glass inward with thumbs while holding ring with fingers until glass is free of holder. Remove glass.

Note: If glass does not move when pressed, a thin layer of Versilube can be applied to the nose ring and pad to assist in removal and installation.

Note: The lenticular style glass requires calibration and must be installed in the orientation described in next step. The glass holder magnet is calibrated at the sensor for an RLens channel value of zero. Orienting the lens properly will achieve the same beam pattern from luminaire to luminaire.

Step 4. (**Lenticular Glass Only**) For lenticular style glass, align center of large notch in glass with glass holder magnet. (Use metal object or screwdriver to assist in locating magnet.) **Figure 2-6**.

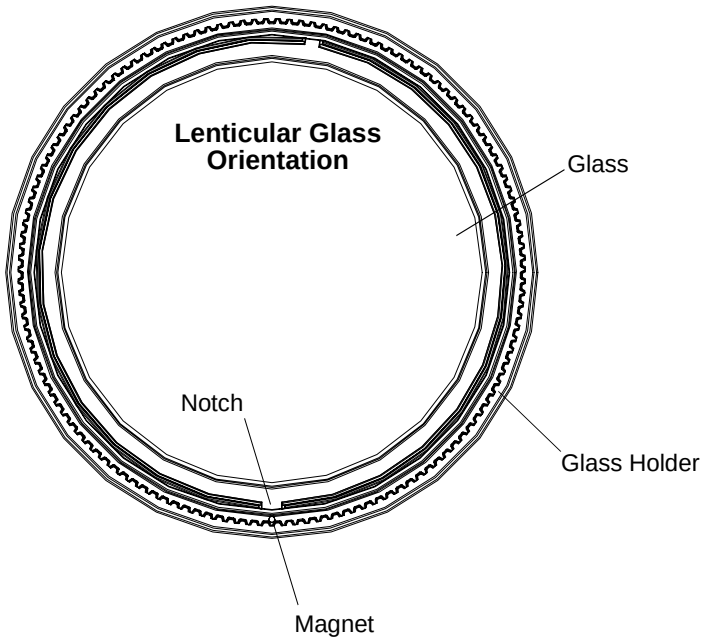


Figure 2-6: Orienting Lenticular Front Glass

Step 5. Seat bottom portion of glass in glass holder and gently work fingers around glass, progressively seating it into holder.

Step 6. Close and latch front ring assembly.

Beam Spreader Assembly Replacement (VL2412, VL2414, and VL2416 Only)

Parts:

22.9661.0409.02 1 EA ASSY, BAFFLE/BEAM SPREADER

Tools:

Screwdriver, #1 Phillips

To remove and replace beam spreader assembly:

Step 1. Disconnect luminaire AC input cable from power source.

CAUTION: Luminaire head balance is changed when lens ring is open. Do not allow head to move freely or damage to head or lens ring could occur.

Step 2. Remove head covers. **Figure 2-7**.

a. At luminaire head assembly, unlatch and open front lens ring.

b. Remove covers by pulling out one side at a time.

CAUTION: Ensure that wires are not damaged or pinched while removing or inserting assemblies.

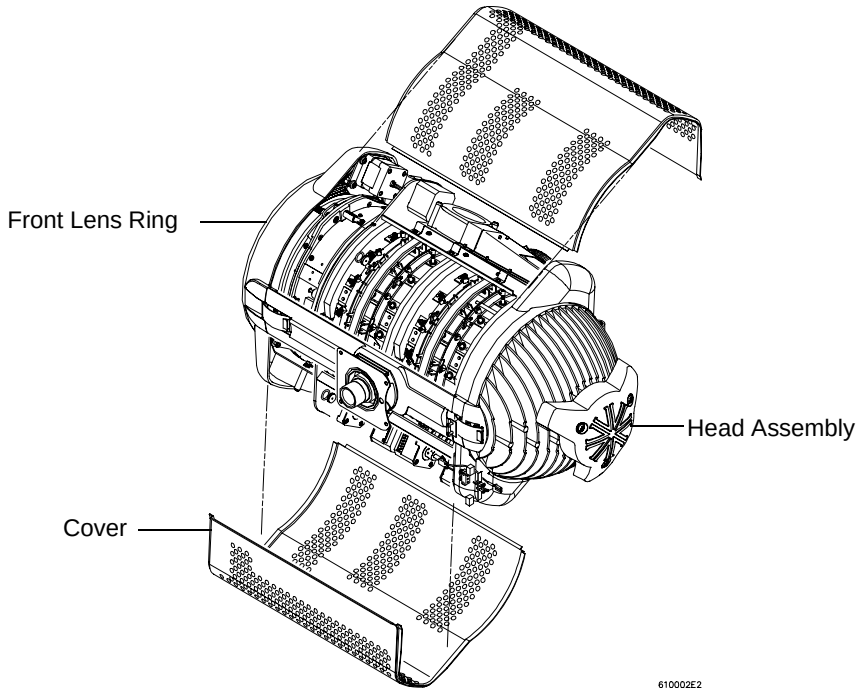


Figure 2-7: Head Covers Removal

Step 3. Close all filters by carefully rotating motor drive rings to closed positions. Rotate each set in direction shown (with luminaire lens facing upward). **Figure 2-8**.

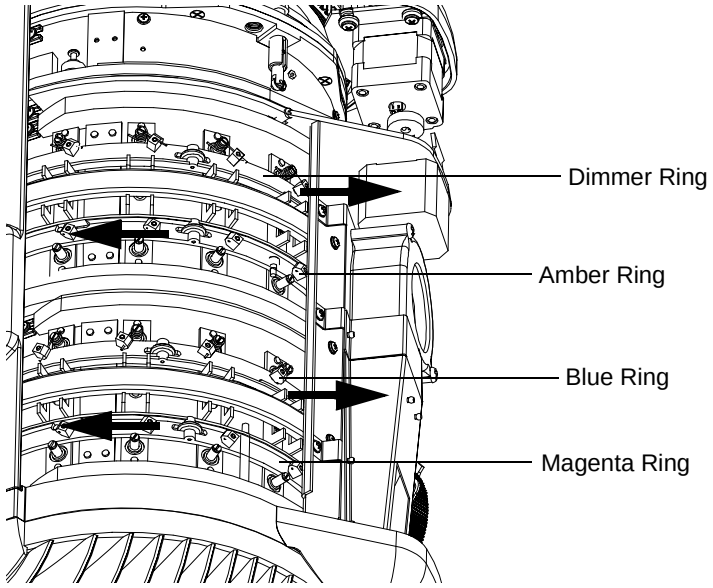


Figure 2-8: Closing Filters

Step 4. At beam spreader assembly, disconnect motor and fan wires.

Step 5. Remove four 6-32×5/16" PPB screws and remove beam spreader assembly from head assembly. **Figure 2-9**.

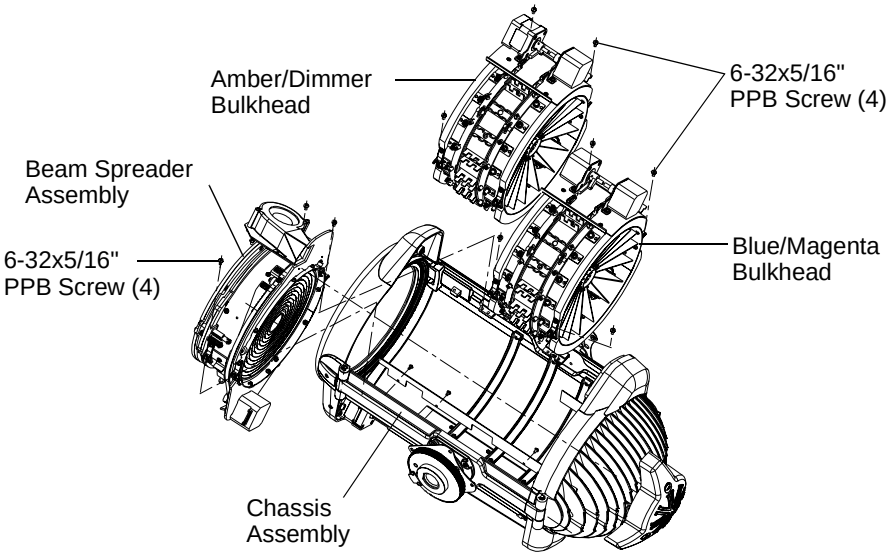


Figure 2-9: Beam Spreader / Bulkheads Replacement

Step 6. Install new component by performing Steps 2–5 in reverse order.

Blue/Magenta Bulkhead Assembly Replacement

Parts:

22.9661.0326 1 EA ASSY, BLU/MAG BULKHEAD

Tools:

Screwdriver, #1 Phillips

To remove and replace blue/magenta bulkhead assembly:

Step 1. Disconnect luminaire AC input cable from power source.

Step 2. Remove head covers. **Figure 2-7**.

a. At luminaire head assembly, unlatch and open front lens ring.

b. Remove covers by pulling out one side at a time.

CAUTION: Ensure that wires are not damaged or pinched while removing or inserting assemblies.

Step 3. Set all filters to closed positions by carefully pushing motor drive links to right (with head pointed up as shown). **Figure 2-8**.

Step 4. At blue/magenta bulkhead, disconnect wires from two motors.

Step 5. Remove four 6-32×5/16" PPB screws and remove blue/magenta bulkhead from head assembly. **Figure 2-9**.

Step 6. Install new component by performing Steps 2–5 in reverse order.

Amber/Dimmer Bulkhead Assembly Replacement

Parts:

22.9661.0327 1 EA ASSY, AMB/DIM BULKHEAD

Tools:

Screwdriver, #1 Phillips

To remove and replace amber/dimmer bulkhead assembly:

Step 1. Disconnect luminaire AC input cable from power source.

Step 2. Remove head covers. **Figure 2-7**.

a. At luminaire head assembly, unlatch and open front lens ring.

b. Remove covers by pulling out one side at a time.

CAUTION: Ensure that wires are not damaged or pinched while removing or inserting assemblies.

Step 3. Set all filters to closed positions by carefully pushing motor drive links to right (with head pointed up as shown). **Figure 2-8**.

Step 4. At amber/dimmer bulkhead, disconnect wires from two motors.

Step 5. Remove four 6-32×5/16" PPB screws and remove amber/dimmer bulkhead from head assembly. **Figure 2-9**.

Step 6. Install new component by performing Steps 1–5 in reverse order.

Yoke Assembly

This section provides removal and replacement procedures for components found in the luminaire yoke assembly.

Tilt Motor Assembly Replacement

Parts:

22.9661.0665 1 EA ASSY, TILT MOTOR

Tools:

Screwdriver, #2 Phillips
Nutdriver, 1/4"

To replace tilt motor assembly:

Step 1. Disconnect luminaire AC input cable from power source.

Step 2. At tilt-side leg, remove yoke leg cover by removing four 6-32×5/16" PPZ screws. **Figure 2-10**. To find the tilt-side leg, refer to "Yoke Components" on page 9.

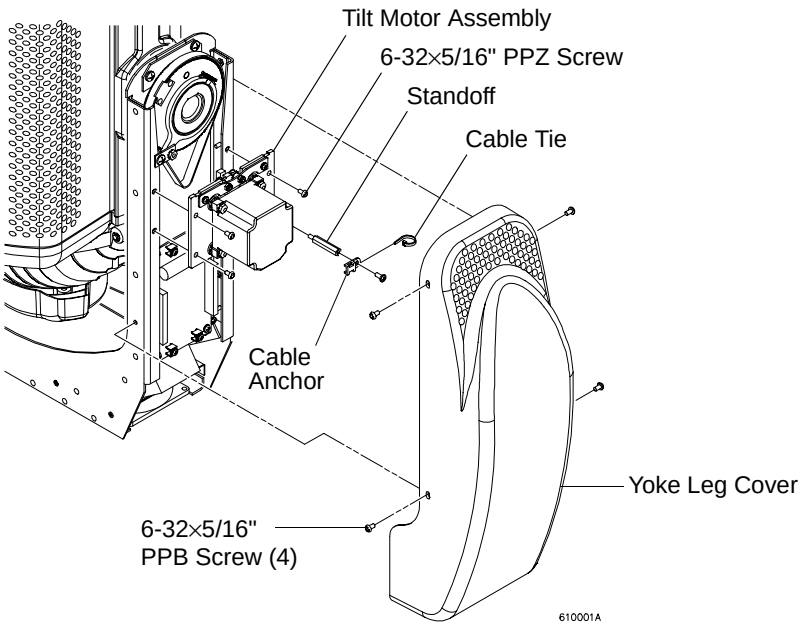


Figure 2-10: Tilt Motor Assembly Replacement

Step 3. At pan/tilt encoder PCB (mounted behind tilt motor mounting plate), disconnect two cable connectors.

Step 4. At tilt motor, disconnect motor wire connector.

Step 5. At cable anchor/standoff, remove one 6-32×5/16" PPZ screw and free cable. (Cable will still be attached by a cable tie to anchor.)

Step 6. Using 1/4" nutdriver, remove 1/4" hex standoff.

Step 7. Remove three remaining 6-32×5/16" PPZ screws securing tilt motor assembly to yoke leg and remove assembly while freeing belt from pulley.

Step 8. Install replacement assembly by performing Steps 2–7 in reverse order.

Auxiliary Controller PCB Replacement

Parts:

24.9661.1400 1 EA PCB ASSY, AUX CONTROLLER

Tools:

Screwdriver, Phillips #2
Nutdriver, 1/4 inch

To replace an auxiliary controller PCBs:

Step 1. Disconnect luminaire AC input cable from power source.

Step 2. At board-side leg, remove yoke leg cover by removing four 6-32×5/16" PPB screws. To find the board-side leg, refer to "Yoke Components" on page 9.

CAUTION: Always use anti-static precautions when working with PCBs.

Step 3. To remove first Auxiliary Controller PCB, remove four 6-32×5/16" PPZ screws and washers. **Figure 2-11**.

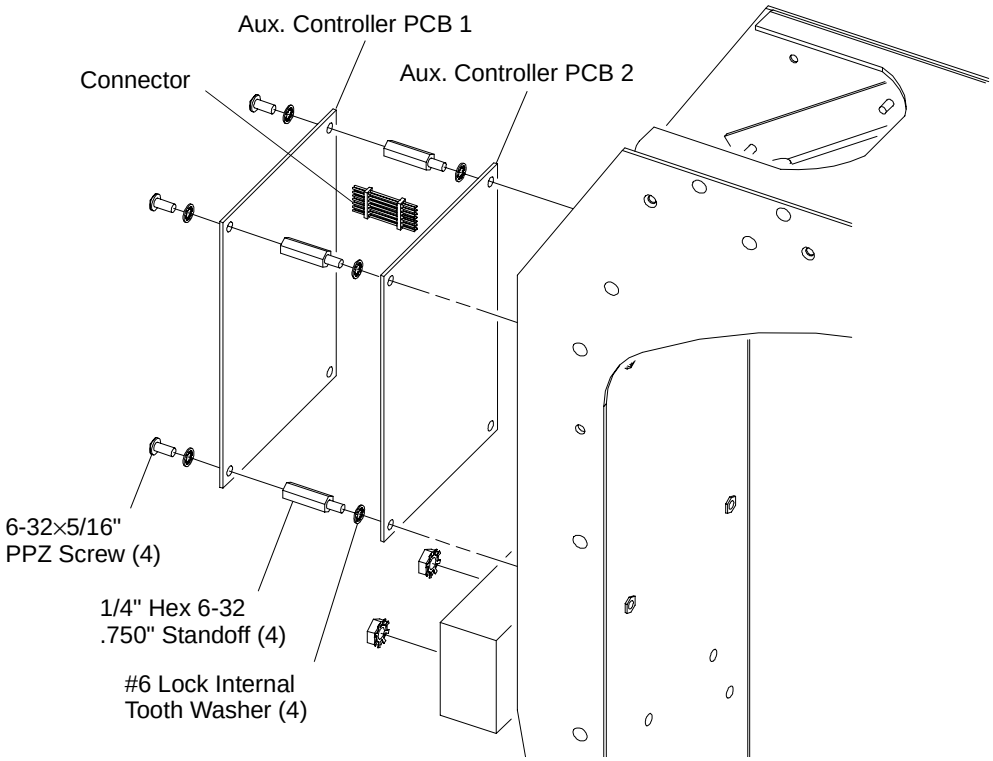


Figure 2-11: Auxiliary PCB Replacement

Step 4. To remove second Auxiliary Controller PCB, using 1/4" nutdriver or wrench, remove four 1/4" hex 6-32 .750" standoffs and washers.

Step 5. Install replacement assemblies by performing Steps 2–4 in reverse order.

Ignitor PCB Replacement (VL2413, VL2414, VL2415, and VL2416 Only)

Parts:

24.9661.1125 1 EA PCB ASSY, IGNITOR

Tools:

Screwdriver, Phillips #2
Screwdriver, Phillip #2 stubby

To replace ignitor PCB:

Step 1. Disconnect luminaire AC input cable from power source.

Step 2. At tilt-side leg, remove yoke leg cover by removing four 6-32×7/16" PPB screws. **Figure 2-12**. To find tilt-side leg, refer to "Yoke Components" on page 9.

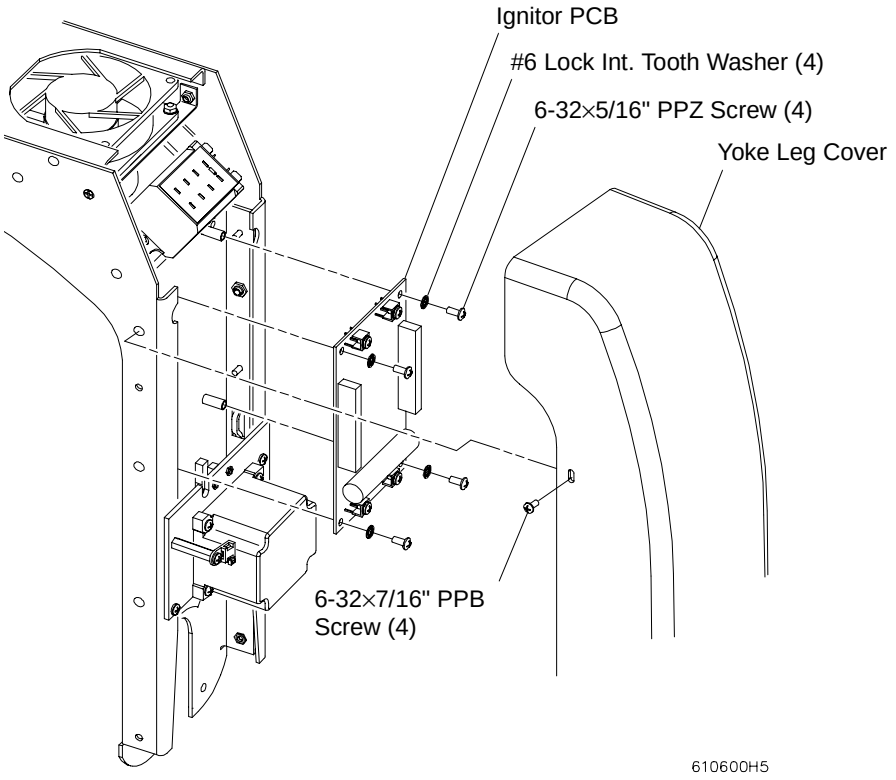


Figure 2-12: Ignitor PCB Replacement

CAUTION: Always use anti-static precautions when working with PCBs.

Step 3. At Ignitor PCB, disconnect Ignitor PCB wires by removing four screws which secure wire ring terminals to PCB.

Step 4. At Ignitor PCB, remove four 6-32×5/16" screws and washers which secure PCB to yoke leg and remove Ignitor PCB. **Figure 2-13**.

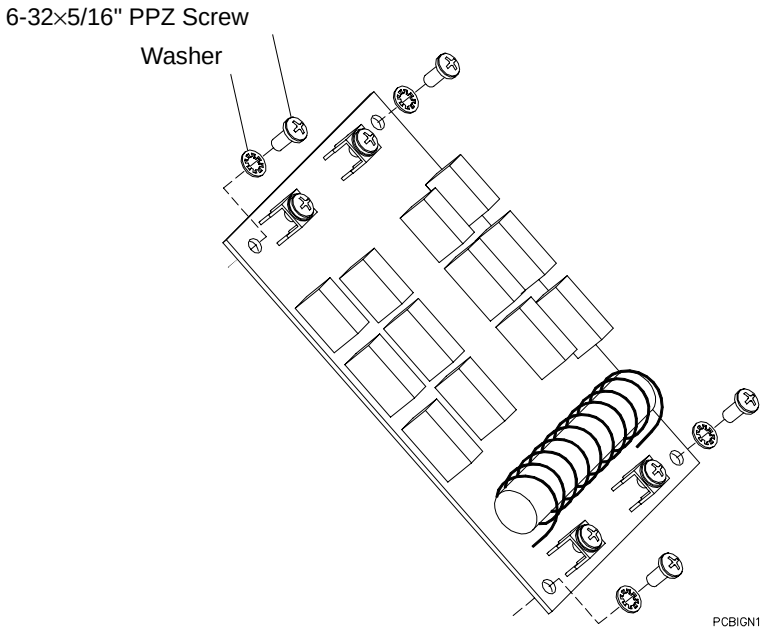


Figure 2-13: Ignitor PCB Removal

Step 5. Install replacement assembly by performing Steps 2–4 in reverse order.

Enclosure Assembly

This section provides removal and replacement procedures for components found in the luminaire enclosure assembly.

Removing Enclosure Covers

To gain access to enclosure components, it will be necessary to remove the top and bottom covers.

Tools:

Screwdriver, #2 Phillips
Allen wrench, 3/16"

To remove and replace enclosure covers:

Step 1. Disconnect luminaire AC input cable from power source.

Step 2. At each top enclosure cover, remove two 6-32×1/4" PPB screws and remove cover. **Figure 2-14**.

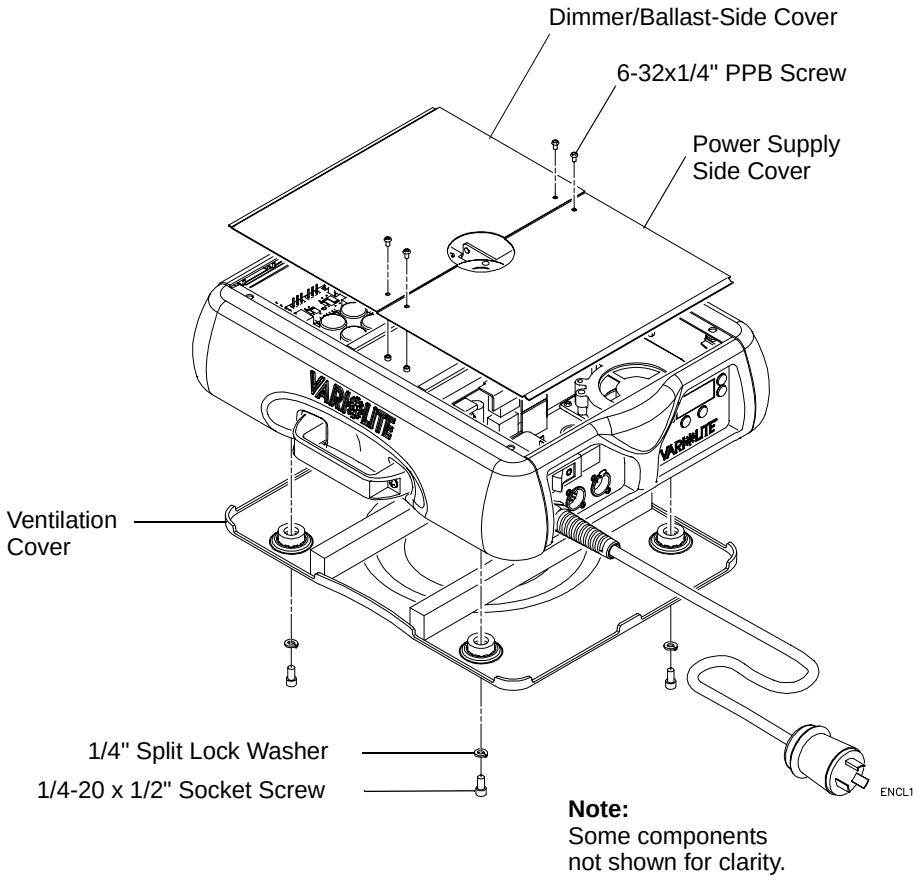


Figure 2-14: Removing Top and Bottom Enclosure Covers

CAUTION: Be careful not to damage lens during next step

Step 3. Carefully lay luminaire on its side, ensuring that lens does not come into contact with any surface. **Figure 2-15**.

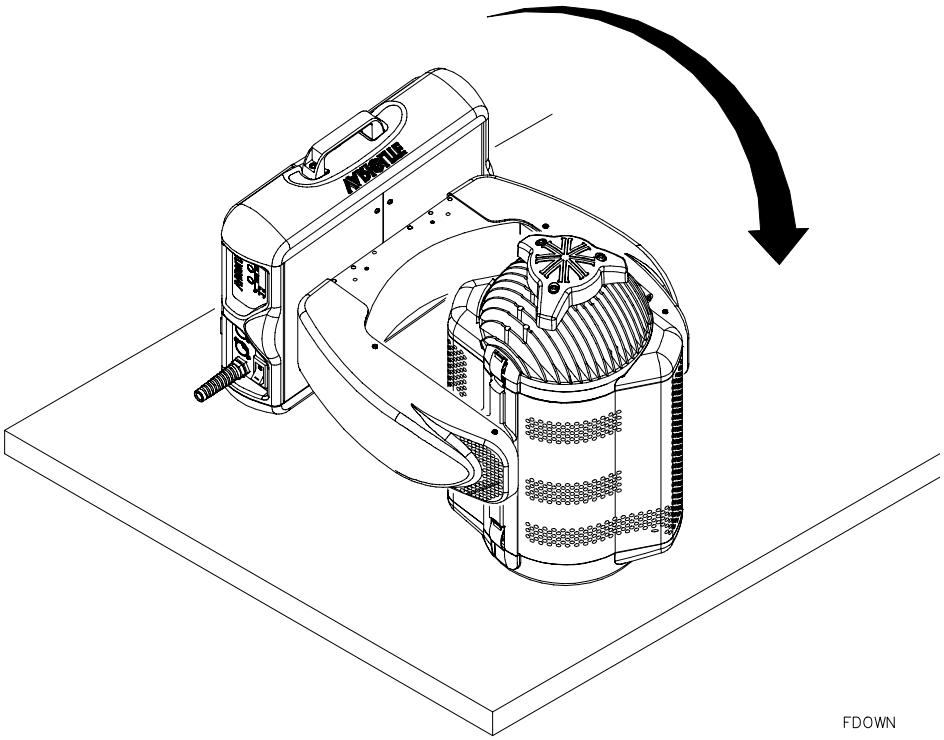


Figure 2-15: Laying Luminaire on Its Side

Step 4. At bottom of enclosure, remove four 1/4-20 × 1/2" socket screws and 1/4" split lock washers and remove ventilation cover.

Step 5. Return luminaire to upright position.

Power Supply Replacement

Parts:

69.3126.0001 1 EA POWER SUPPLY, 100W +24V OUT 4.2A

Tools:

Screwdriver, Phillips #2, stubby

To remove the power supply:

Step 1. Disconnect luminaire AC input cable from power source.

Step 2. At enclosure, remove power supply-side and ventilation covers. Refer to "Removing Enclosure Covers" on page 32.

Step 3. At power supply, disconnect wiring:

Location	Connector
J1	3-Pos White
J2	12-Pos Orange MTA
GND	Faston

Step 4. At power supply, remove two 6-32×3/8" screws from top of board. **Figure 2-16**.

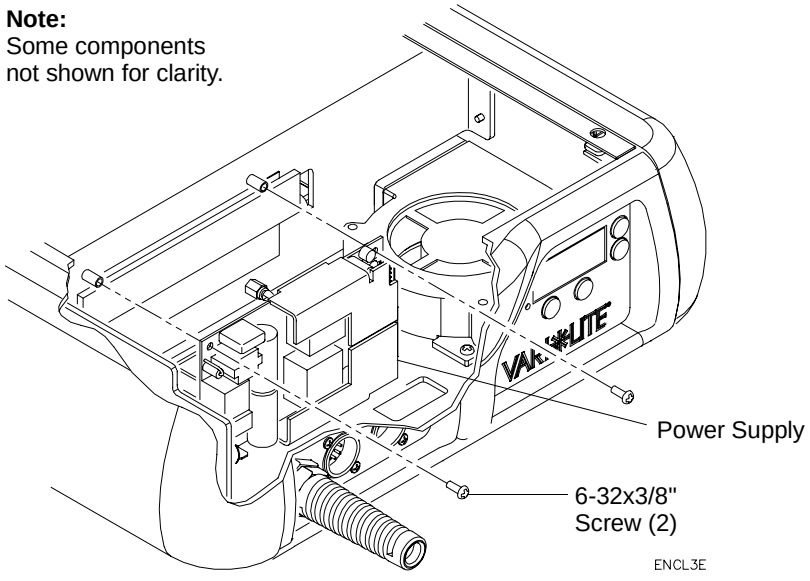


Figure 2-16: Power Supply Replacement

Step 5. Free bottom of board from two friction clasps and remove power supply.

Step 6. Install replacement assembly by performing Steps 2–5 in reverse order.

Ballast Module Assembly Replacement (VL2413, VL2414, VL2415, and VL2416 Only)

Parts:

23.9661.1279	1 EA	ASSY, BALLAST MODULE, 625W ARC **VL2413/VL2414**
or		
23.9661.1269	1 EA	ASSY, BALLAST MODULE, 1200W ARC **VL2415/VL2416**

Tools:

Screwdriver, Phillips #2

To remove the ballast module assembly:

Step 1. Disconnect luminaire AC input cable from power source.

Step 2. At enclosure, remove ballast-side and ventilation covers. Refer to "Removing Enclosure Covers" on page 32.

Step 3. Remove both handles by removing two 10-32 X 5/8" PPB screws at each.

Step 4. At enclosure, remove eight 6-32×3/8" PPZ screws and both side covers.

Step 5. At enclosure, remove APS side bracket and front cover from ballast side. **Figure 2-17**.

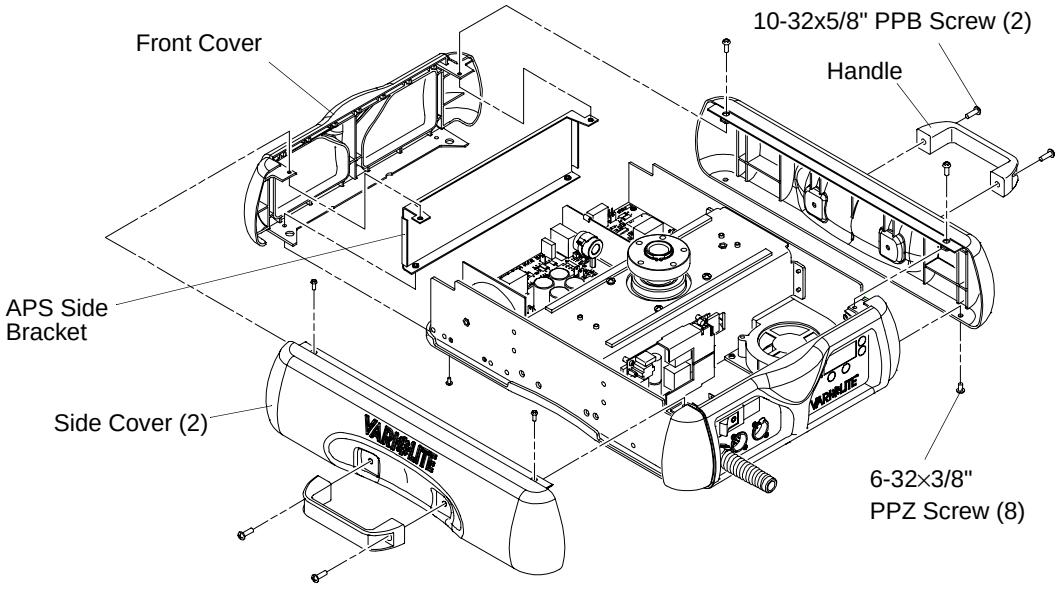


Figure 2-17: Accessing Ballast Module

Step 6. At ballast, disconnect wiring:

Location	Connector
J102	2-Pos Connector
J103	3-Pos Mate N Lok
J108	Red 1+ (Choke)
J109	Dark Blue 2– (Choke)
J110	Orange 3+ (Choke)
J111	Orange 4– (Choke)
J112	8-Pos MTA
J113	3-Pos MTA
J202	Lamp Wires (Black)
J203	Lamp Wires (White)
J204	Light Blue (Choke)
J205	Red (Choke)

Step 7. Pull wires through ferrite core. **Figure 2-18**.

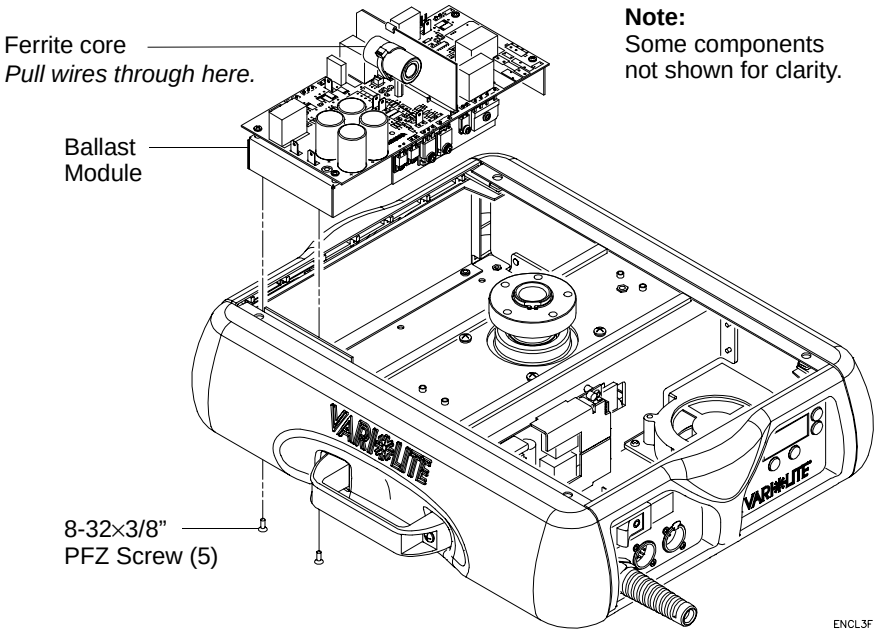


Figure 2-18: Ballast Module Replacement

Step 8. At bottom of enclosure, remove five 8-32×3/8" PFZ screws which secure ballast module to enclosure.

Step 9. Remove ballast module.

Step 10. Install replacement assembly by performing Steps 2–9 in reverse order.

Dimmer Module Assembly Replacement (VL2411 and VL2412 Only)

Parts:

23.9661.1302 1 EA ASSY, SCR DIMMER MODULE

Tools:

Screwdriver, Phillips #2

To remove the dimmer module assembly:

Step 1. Disconnect luminaire AC input cable from power source.

Step 2. At enclosure, remove dimmer-side and ventilation covers. Refer to “Removing Enclosure Covers” on page 32.

Step 3. Remove APS side bracket and front cover panel from the ballast side. **Figure 2-17**.

Step 4. At dimmer, disconnect wiring:

Location	Connector
J1	Black - SSR AC1
J2	Blue - SSR AC2
J3	Red + (Choke)
J4	Blue 2– (Choke)
J5	Lamp Wires (Black)
J6	Lamp Wires (White)
J7	3-Pos Mate N Lok
J8	3-Pos MTA SSR DC +/-
J9	8-Pos MTA Dimmer Control
J10	2-Pos Connector
J11	2-Pos MTA
J14	6-Pos (dual row)
J15	2-Pos MTA

Step 5. At bottom of enclosure, remove four 8-32×3/8" PFZ screws which secure dimmer module to enclosure. **Figure 2-19**.

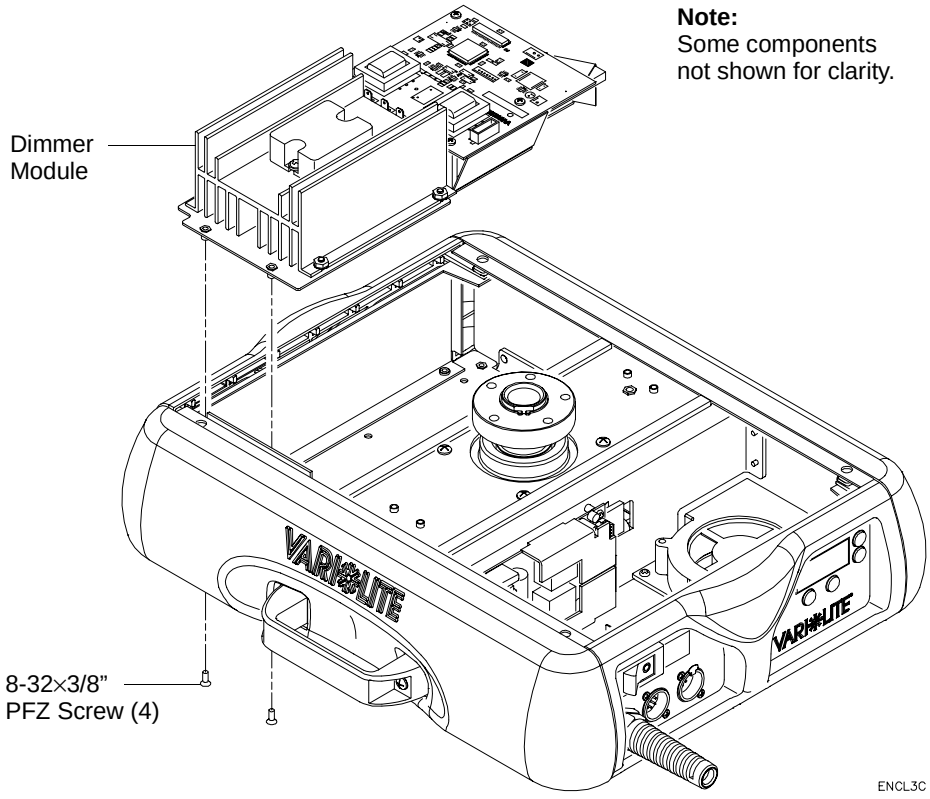


Figure 2-19: Dimmer Module Replacement

Step 6. Remove dimmer module.

Step 7. Install replacement assembly by performing Steps 2–6 in reverse order.

Pan Motor Assembly Removal

Parts:

22.9661.0664 1 EA ASSY, PAN MOTOR

Tools:

Screwdriver, #2 Phillips

To remove the pan motor assembly:

Step 1. Disconnect luminaire AC input cable from power source.

CAUTION: Be careful not to damage lens during next step.

Step 2. At enclosure, remove bottom ventilation cover. Refer to "Removing Enclosure Covers" on page 32.

Step 3. At pan motor assembly, remove four 6-32×3/8" PPZ screws. **Figure 2-20**.

Step 4. Slip belt off pan motor pulley.

Step 5. Pull pan motor assembly part way out of enclosure and disconnect sensor and motor wire connectors. Remove pan motor assembly.

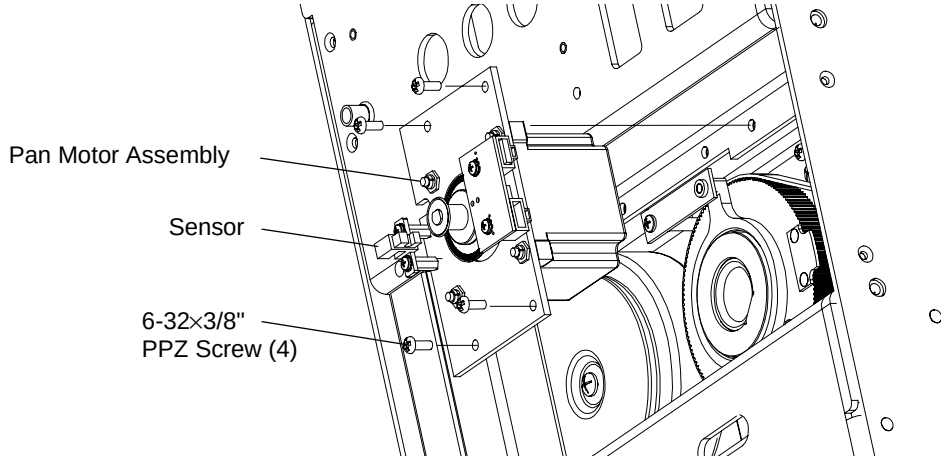


Figure 2-20: Pan Motor Assembly Replacement

CAUTION: Ensure no wires will be pinched between mounting plates before securing replacement pan motor assembly with screws

Step 6. Install replacement assembly by performing Steps 2–5 in reverse order.

Main Controller PCB Replacement

Parts:

24.9661.1225 1 EA PCB ASSY, MAIN CONTROLLER 3-PHASE

Tools:

Screwdriver, #2 Phillips
Screwdriver, #2 Phillips, stubby

To remove and replace Main Controller PCB:

Step 1. Disconnect luminaire AC input cable from power source.

Step 2. At enclosure, remove power supply-side and ventilation covers. Refer to "Removing Enclosure Covers" on page 32.

CAUTION: Always use anti-static precautions when working with PCBs.

Step 3. At Main Controller PCB, disconnect wiring.

Location	Connector
J2	8-Pos Red MTA
J3	2-Pos Blue MTA (Fan)
J5	6-Pos White Connector (dual row)
J6	4-Pos White Connector (dual row)
J7	4-Pos Red MTA
J9	20-Pos Black Connector (dual row)

Step 4. At top of PCB, remove two 6-32×3/8" screws and remove PCB. **Figure 2-21**.

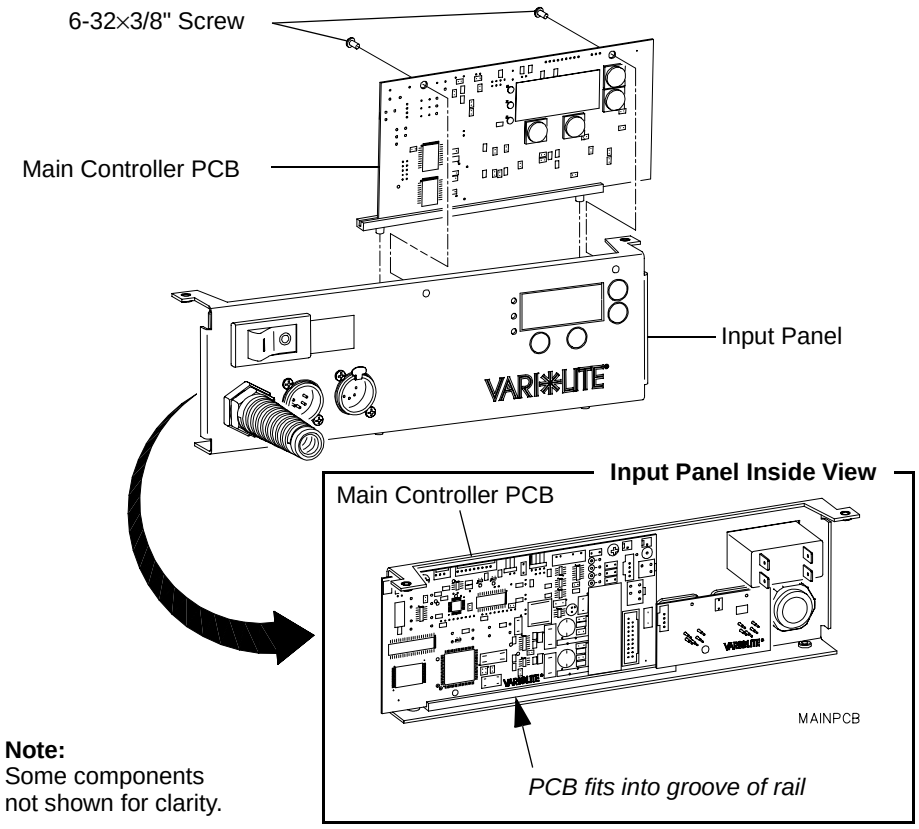


Figure 2-21: Main Controller PCB Removal

Step 5. Check switches for seating inside panel cutouts. Ensure they work before installing the screws.

Step 6. Install replacement assembly by performing Steps 2–4 in reverse order. (Ensure that bottom of Main Controller PCB is fitted into groove of rail.)

DMX Input PCB Replacement

Parts:

24.9661.1251 1 EA PCB ASSY, DMX INPUT

Tools:

Screwdriver, #2 Phillips

To remove and replace DMX Input PCB:

Step 1. Disconnect luminaire AC input cable from power source.

Step 2. At enclosure, remove power supply-side and ventilation covers. Refer to "Removing Enclosure Covers" on page 32.

Step 3. At DMX Input PCB, disconnect wiring connector (J3).

Step 4. At front connector panel, remove two M3×5mm LG PPB screws which secure each DMX Input connector to panel (total of four screws). **Figure 2-22**.

Step 5. Remove DMX Input PCB Assembly.

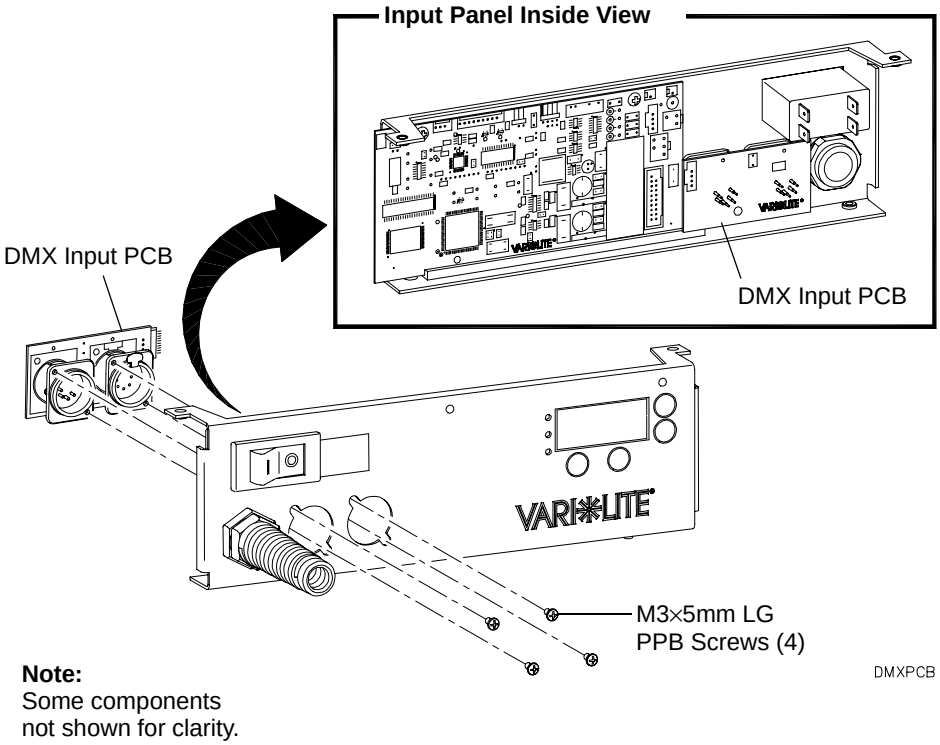


Figure 2-22: DMX Input PCB Assembly Replacement

Step 6. Install replacement assembly by performing Steps 1–5 in reverse order.

CHAPTER 3.

Illustrated Parts Breakdown

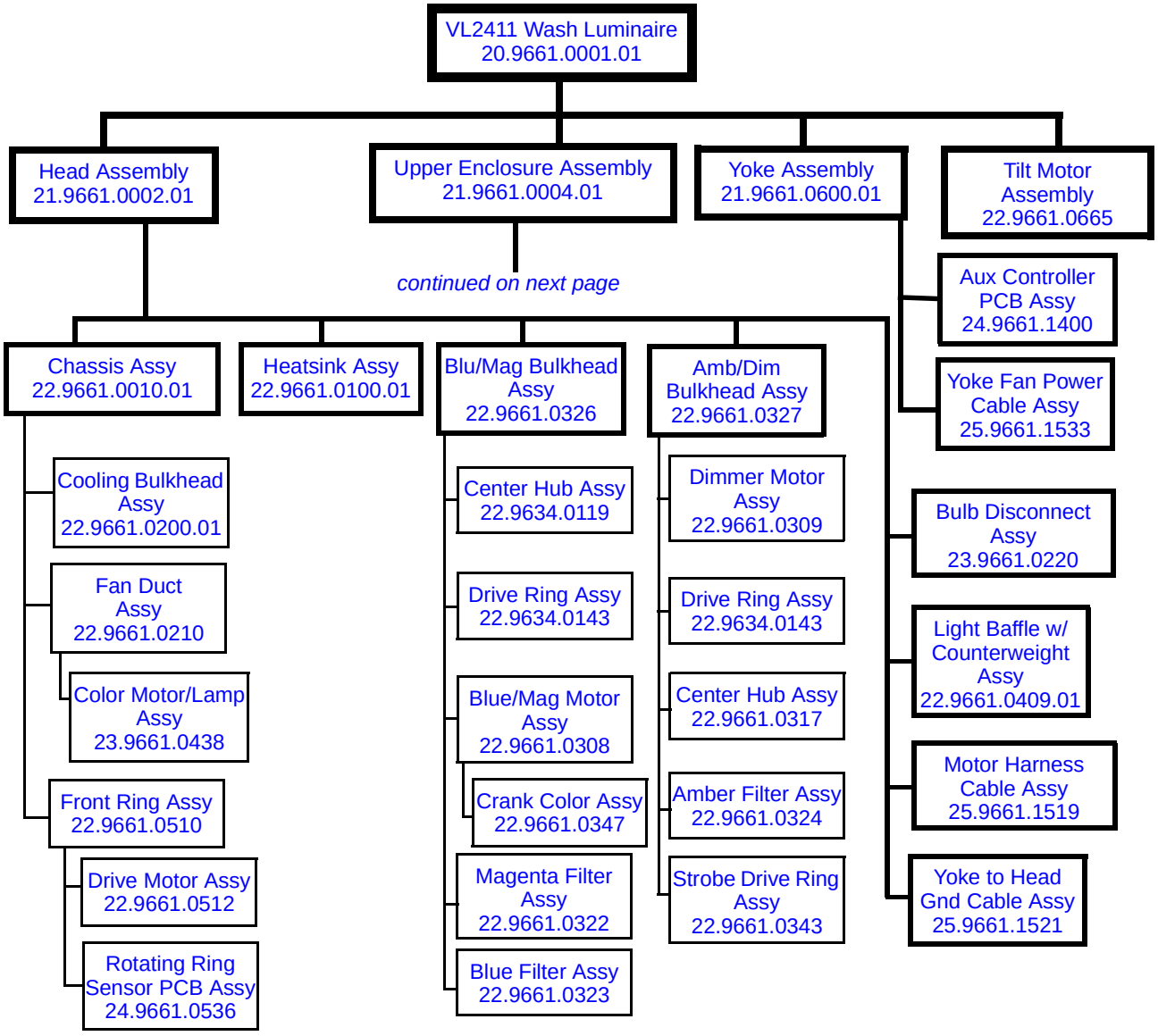
This chapter contains illustrated parts breakdowns for assemblies in the VL2400 Series wash luminaire.

- **Drawing Trees**
- **Top Assembly**
- **Head**
- **Beam Spreader**
- **Yoke**
- **Enclosure**
- **Cables**

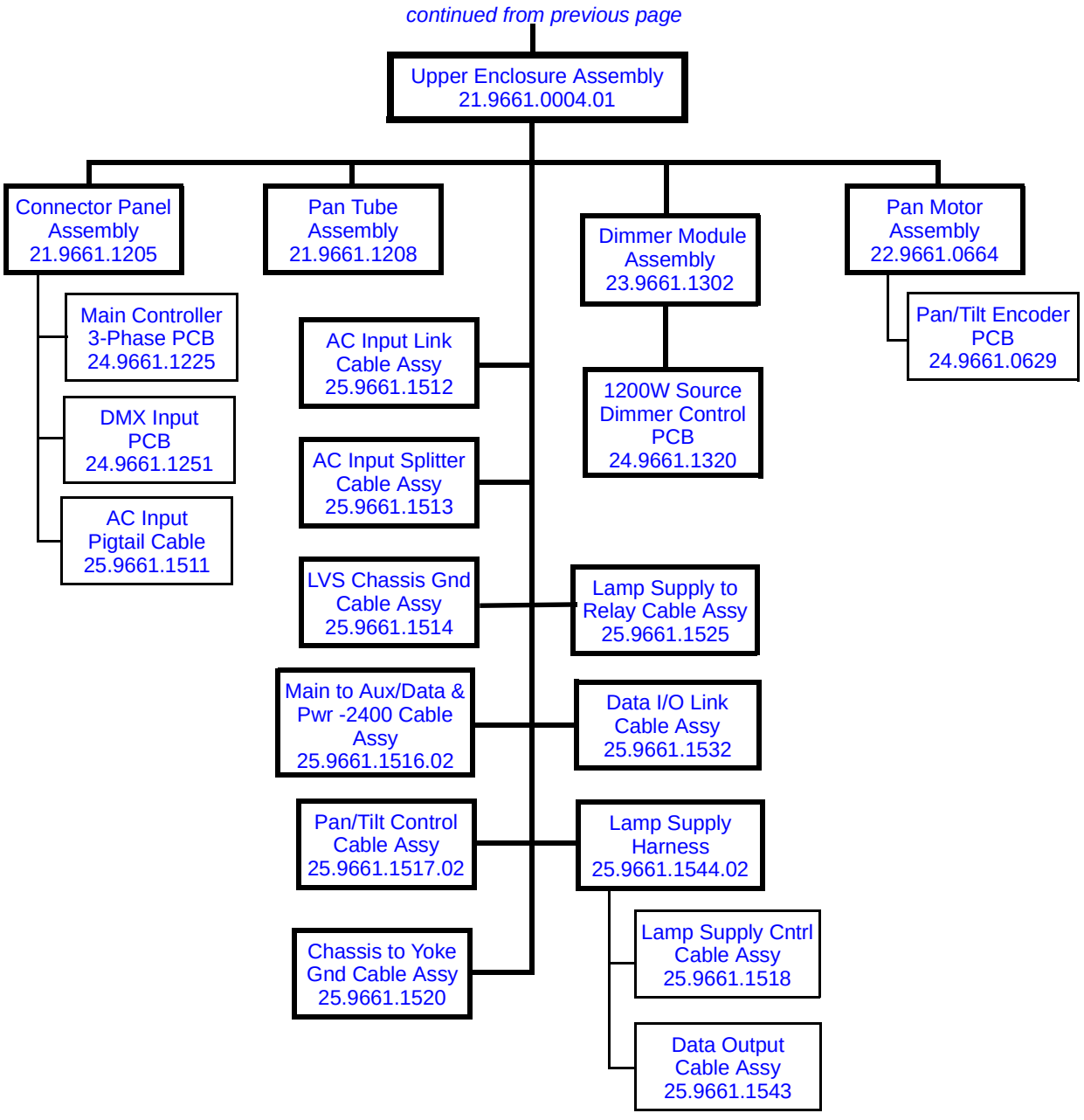
SERVICE

Drawing Trees

VL2411 Wash Luminaire (20.9661.0001.01)


VL2411 Wash Luminaire 20.9661.0001.01
Head Assembly 21.9661.0002.01
Upper Enclosure Assembly 21.9661.0004.01
Yoke Assembly 21.9661.0600.01
Tilt Motor Assembly 22.9661.0665
continued on next page
Chassis Assy 22.9661.0010.01
Heatsink Assy 22.9661.0100.01
Blu/Mag Bulkhead Assy 22.9661.0326
Amb/Dim Bulkhead Assy 22.9661.0327
Aux Controller PCB Assy 24.9661.1400
Yoke Fan Power Cable Assy 25.9661.1533
Cooling Bulkhead Assy 22.9661.0200.01
Fan Duct Assy 22.9661.0210
Color Motor/Lamp Assy 23.9661.0438
Front Ring Assy 22.9661.0510
Drive Motor Assy 22.9661.0512
Rotating Ring Sensor PCB Assy 24.9661.0536
Center Hub Assy 22.9634.0119
Drive Ring Assy 22.9634.0143
Blue/Mag Motor Assy 22.9661.0308
Crank Color Assy 22.9661.0347
Magenta Filter Assy 22.9661.0322
Blue Filter Assy 22.9661.0323
Dimmer Motor Assy 22.9661.0309
Drive Ring Assy 22.9634.0143
Center Hub Assy 22.9661.0317
Amber Filter Assy 22.9661.0324
Strobe Drive Ring Assy 22.9661.0343
Bulb Disconnect Assy 23.9661.0220
Light Baffle w/ Counterweight Assy 22.9661.0409.01
Motor Harness Cable Assy 25.9661.1519
Yoke to Head Gnd Cable Assy 25.9661.1521

VL2411 Wash Luminaire (continued)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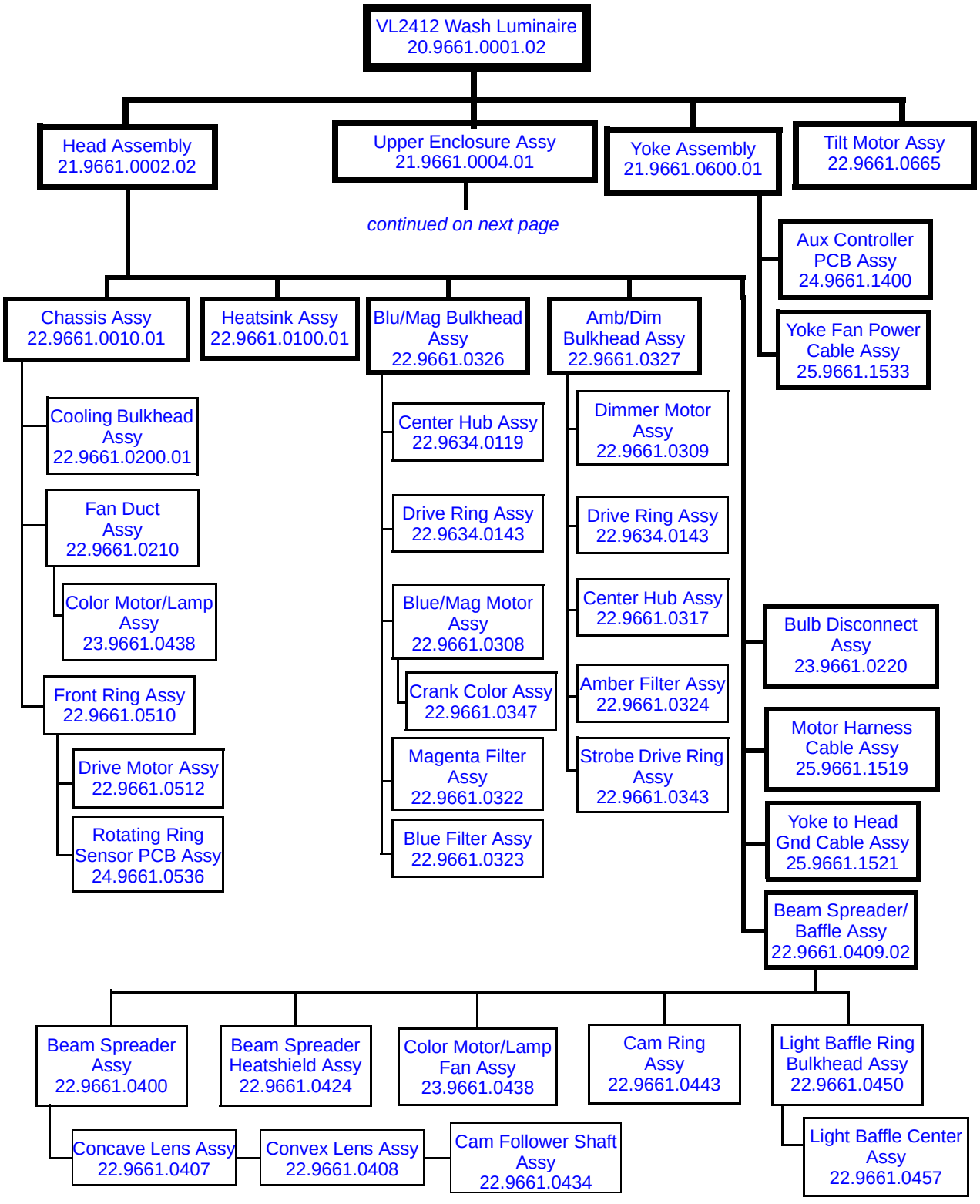
Upper Enclosure Assembly 21.9661.0004.01
Connector Panel Assembly 21.9661.1205
Pan Tube Assembly 21.9661.1208
Dimmer Module Assembly 23.9661.1302
Pan Motor Assembly 22.9661.0664
Main Controller 3-Phase PCB 24.9661.1225
DMX Input PCB 24.9661.1251
AC Input Pigtail Cable 25.9661.1511
AC Input Link Cable Assy 25.9661.1512
AC Input Splitter Cable Assy 25.9661.1513
LVS Chassis Gnd Cable Assy 25.9661.1514
Main to Aux/Data & Pwr -2400 Cable Assy 25.9661.1516.02
Pan/Tilt Control Cable Assy 25.9661.1517.02
Chassis to Yoke Gnd Cable Assy 25.9661.1520
1200W Source Dimmer Control PCB 24.9661.1320
Lamp Supply to Relay Cable Assy 25.9661.1525
Data I/O Link Cable Assy 25.9661.1532
Lamp Supply Harness 25.9661.1544.02
Lamp Supply Cntrl Cable Assy 25.9661.1518
Data Output Cable Assy 25.9661.1543
Pan/Tilt Encoder PCB 24.9661.0629

VL2412 Wash Luminaire (20.9661.0001.02)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Head Assembly 21.9661.0002.02
Upper Enclosure Assy 21.9661.0004.01
Yoke Assembly 21.9661.0600.01
Tilt Motor Assy 22.9661.0665
continued on next page
Aux Controller PCB Assy 24.9661.1400
Yoke Fan Power Cable Assy 25.9661.1533
Chassis Assy 22.9661.0010.01
Heatsink Assy 22.9661.0100.01
Blu/Mag Bulkhead Assy 22.9661.0326
Amb/Dim Bulkhead Assy 22.9661.0327
Cooling Bulkhead Assy 22.9661.0200.01
Fan Duct Assy 22.9661.0210
Color Motor/Lamp Assy 23.9661.0438
Front Ring Assy 22.9661.0510
Drive Motor Assy 22.9661.0512
Rotating Ring Sensor PCB Assy 24.9661.0536
Center Hub Assy 22.9634.0119
Drive Ring Assy 22.9634.0143
Blue/Mag Motor Assy 22.9661.0308
Crank Color Assy 22.9661.0347
Magenta Filter Assy 22.9661.0322
Blue Filter Assy 22.9661.0323
Dimmer Motor Assy 22.9661.0309
Drive Ring Assy 22.9634.0143
Center Hub Assy 22.9661.0317
Amber Filter Assy 22.9661.0324
Strobe Drive Ring Assy 22.9661.0343
Bulb Disconnect Assy 23.9661.0220
Motor Harness Cable Assy 25.9661.1519
Yoke to Head Gnd Cable Assy 25.9661.1521
Beam Spreader/ Baffle Assy 22.9661.0409.02
Beam Spreader Assy 22.9661.0400
Beam Spreader Heatshield Assy 22.9661.0424
Color Motor/Lamp Fan Assy 23.9661.0438
Cam Ring Assy 22.9661.0443
Light Baffle Ring Bulkhead Assy 22.9661.0450
Concave Lens Assy 22.9661.0407
Convex Lens Assy 22.9661.0408
Cam Follower Shaft Assy 22.9661.0434
Light Baffle Center Assy 22.9661.0457

VL2412 Wash Luminaire (cont.)

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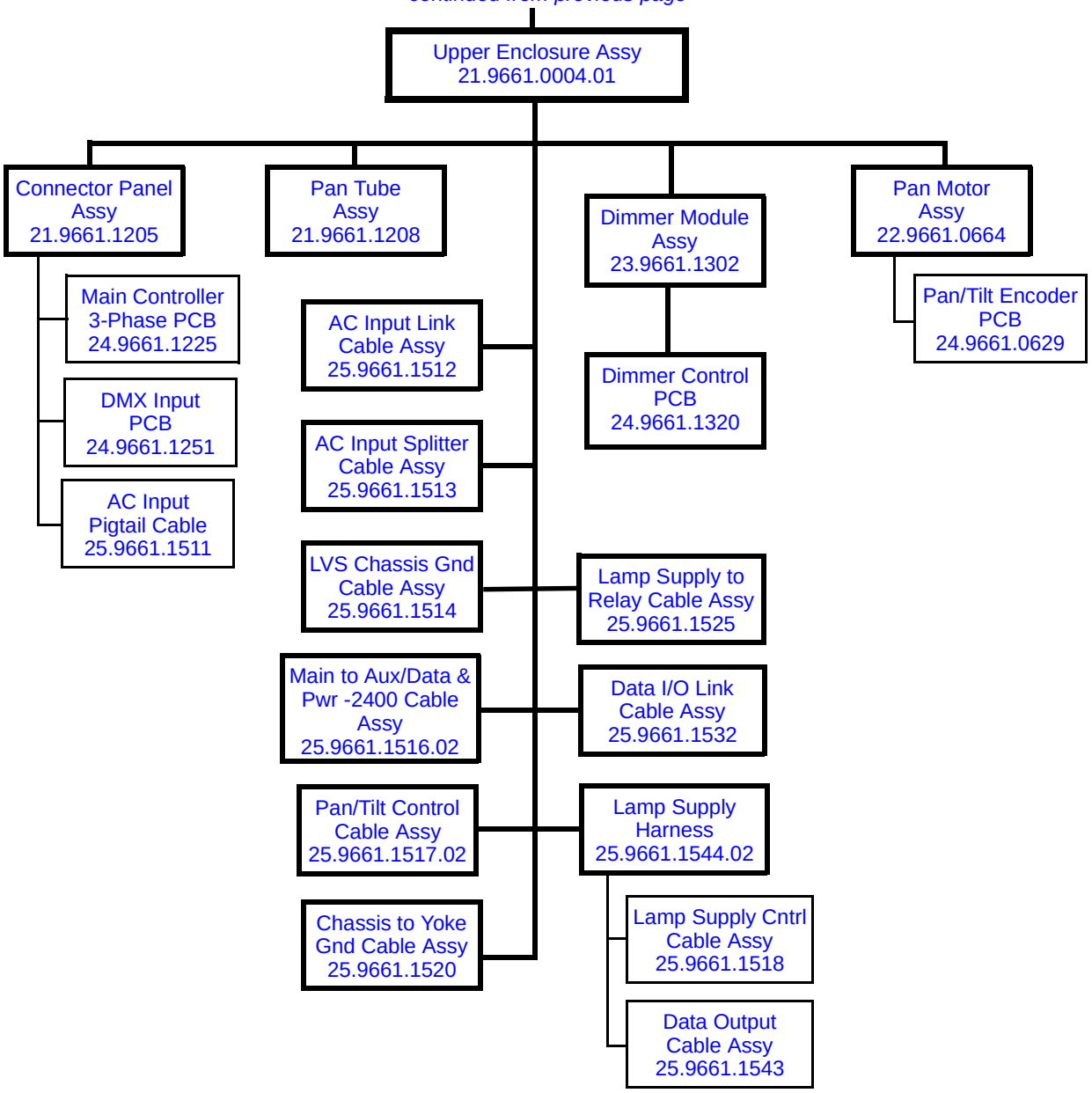
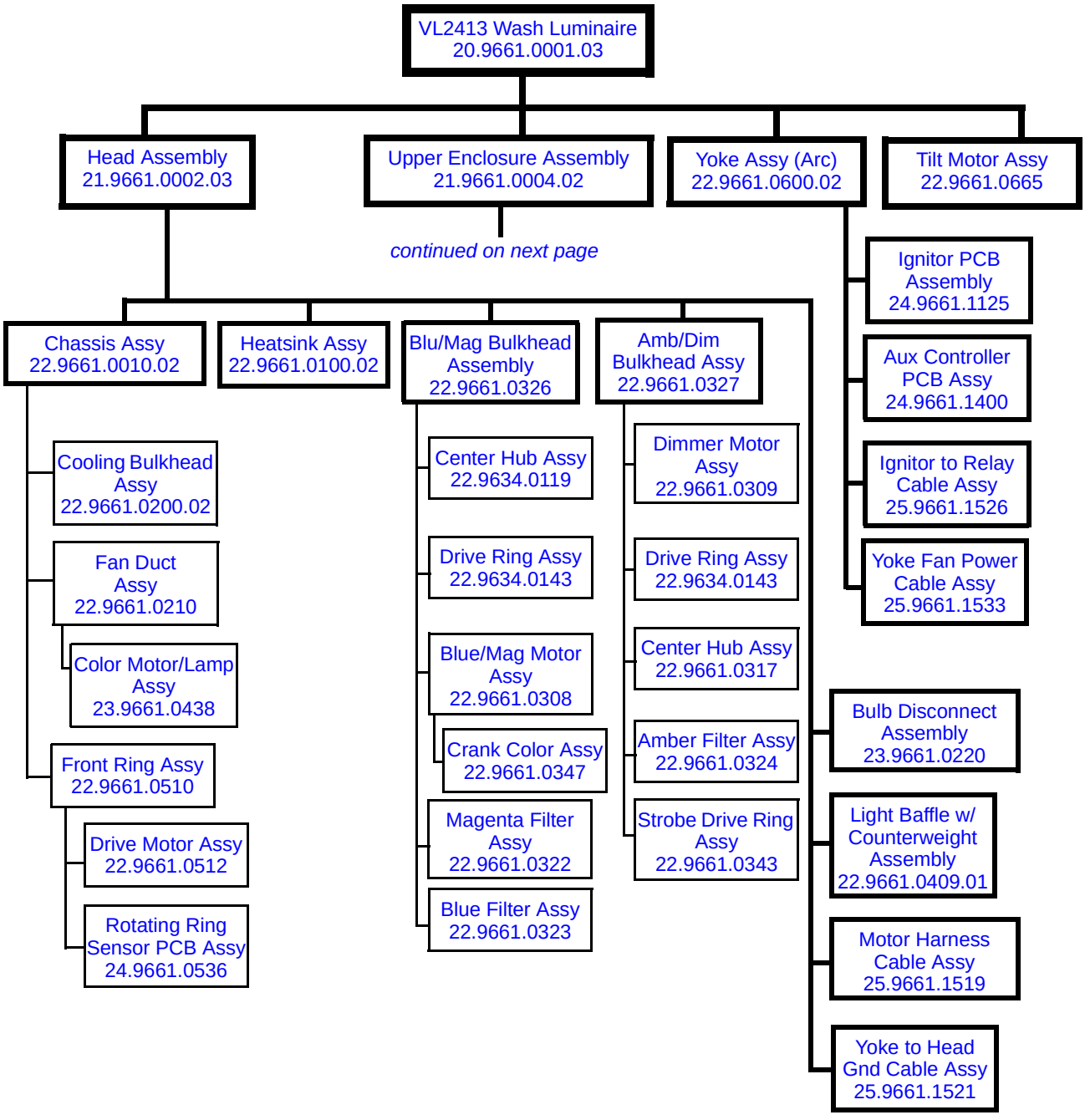


VL2413 Wash Luminaire (20.9661.0001.03)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Head Assembly 21.9661.0002.03
Upper Enclosure Assembly 21.9661.0004.02
Yoke Assy (Arc) 22.9661.0600.02
Tilt Motor Assy 22.9661.0665
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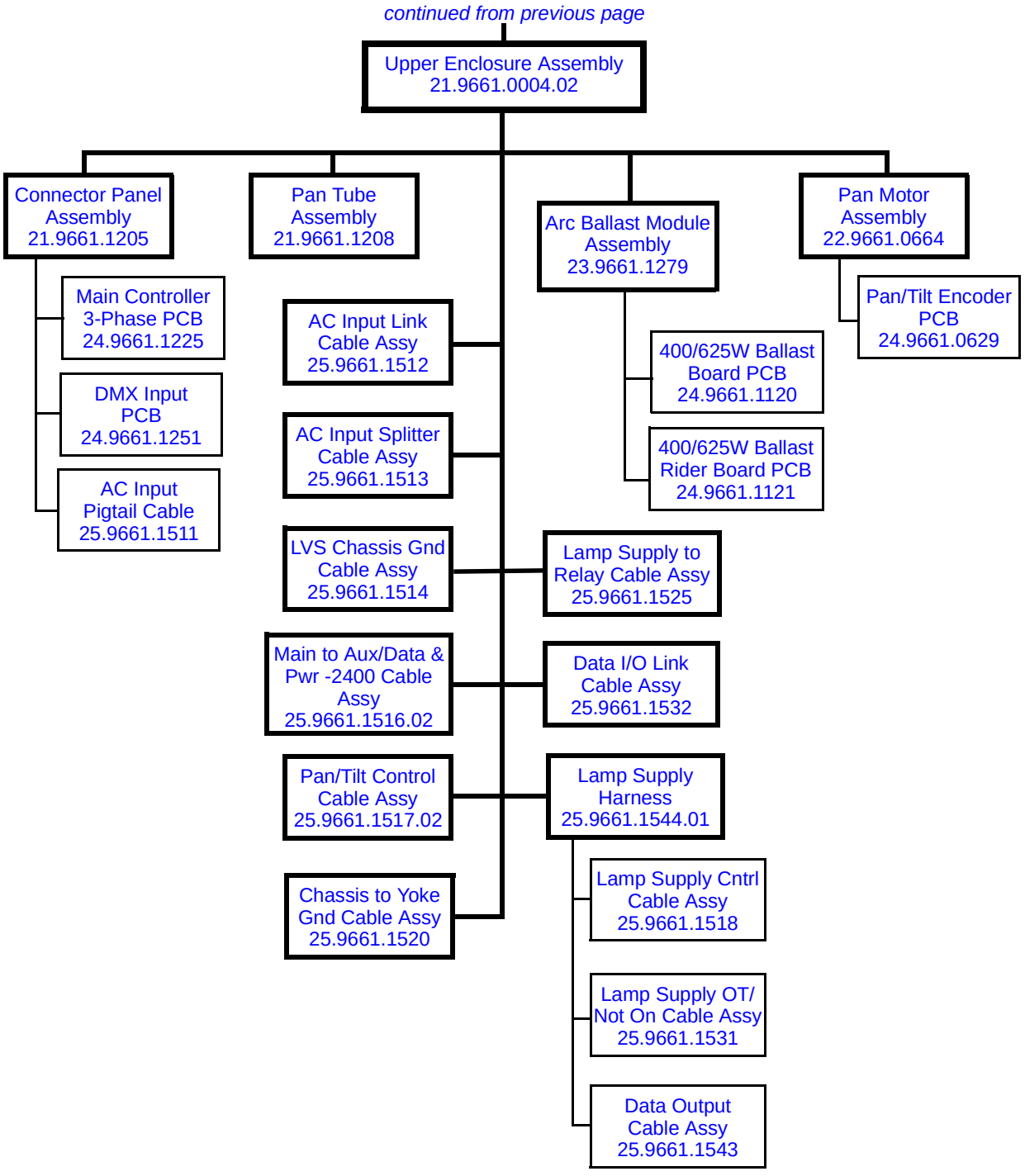
Chassis Assy 22.9661.0010.02
Heatsink Assy 22.9661.0100.02
Blu/Mag Bulkhead Assembly 22.9661.0326
Amb/Dim Bulkhead Assy 22.9661.0327
Ignitor PCB Assembly 24.9661.1125
Aux Controller PCB Assy 24.9661.1400
Ignitor to Relay Cable Assy 25.9661.1526
Yoke Fan Power Cable Assy 25.9661.1533
Cooling Bulkhead Assy 22.9661.0200.02
Fan Duct Assy 22.9661.0210
Color Motor/Lamp Assy 23.9661.0438
Front Ring Assy 22.9661.0510
Drive Motor Assy 22.9661.0512
Rotating Ring Sensor PCB Assy 24.9661.0536
Center Hub Assy 22.9634.0119
Drive Ring Assy 22.9634.0143
Blue/Mag Motor Assy 22.9661.0308
Crank Color Assy 22.9661.0347
Magenta Filter Assy 22.9661.0322
Blue Filter Assy 22.9661.0323
Dimmer Motor Assy 22.9661.0309
Drive Ring Assy 22.9634.0143
Center Hub Assy 22.9661.0317
Amber Filter Assy 22.9661.0324
Strobe Drive Ring Assy 22.9661.0343
Bulb Disconnect Assembly 23.9661.0220
Light Baffle w/ Counterweight Assembly 22.9661.0409.01
Motor Harness Cable Assy 25.9661.1519
Yoke to Head Gnd Cable Assy 25.9661.1521

VL2413 Wash Luminaire (cont.)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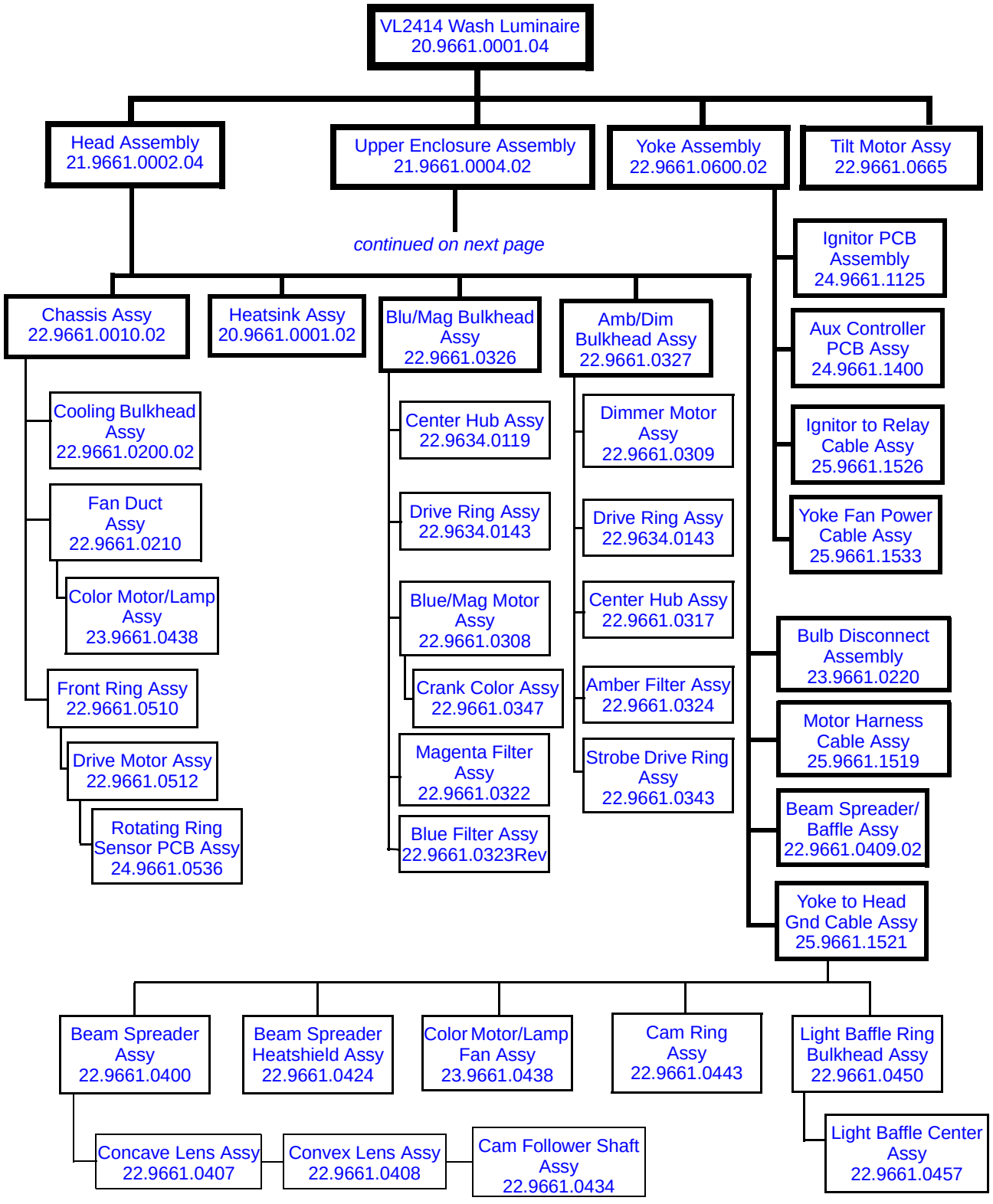
Upper Enclosure Assembly 21.9661.0004.02
Connector Panel Assembly 21.9661.1205
Pan Tube Assembly 21.9661.1208
Arc Ballast Module Assembly 23.9661.1279
Pan Motor Assembly 22.9661.0664
Main Controller 3-Phase PCB 24.9661.1225
DMX Input PCB 24.9661.1251
AC Input Pigtail Cable 25.9661.1511
Pan/Tilt Encoder PCB 24.9661.0629
400/625W Ballast Board PCB 24.9661.1120
400/625W Ballast Rider Board PCB 24.9661.1121
AC Input Link Cable Assy 25.9661.1512
AC Input Splitter Cable Assy 25.9661.1513
LVS Chassis Gnd Cable Assy 25.9661.1514
Lamp Supply to Relay Cable Assy 25.9661.1525
Main to Aux/Data & Pwr -2400 Cable Assy 25.9661.1516.02
Data I/O Link Cable Assy 25.9661.1532
Pan/Tilt Control Cable Assy 25.9661.1517.02
Lamp Supply Harness 25.9661.1544.01
Chassis to Yoke Gnd Cable Assy 25.9661.1520
Lamp Supply Cntrl Cable Assy 25.9661.1518
Lamp Supply OT/ Not On Cable Assy 25.9661.1531
Data Output Cable Assy 25.9661.1543

VL2414 Wash Luminaire (20.9661.0001.04)


VL2414 Wash Luminaire 20.9661.0001.04
Head Assembly 21.9661.0002.04
Upper Enclosure Assembly 21.9661.0004.02
Yoke Assembly 22.9661.0600.02
Tilt Motor Assy 22.9661.0665
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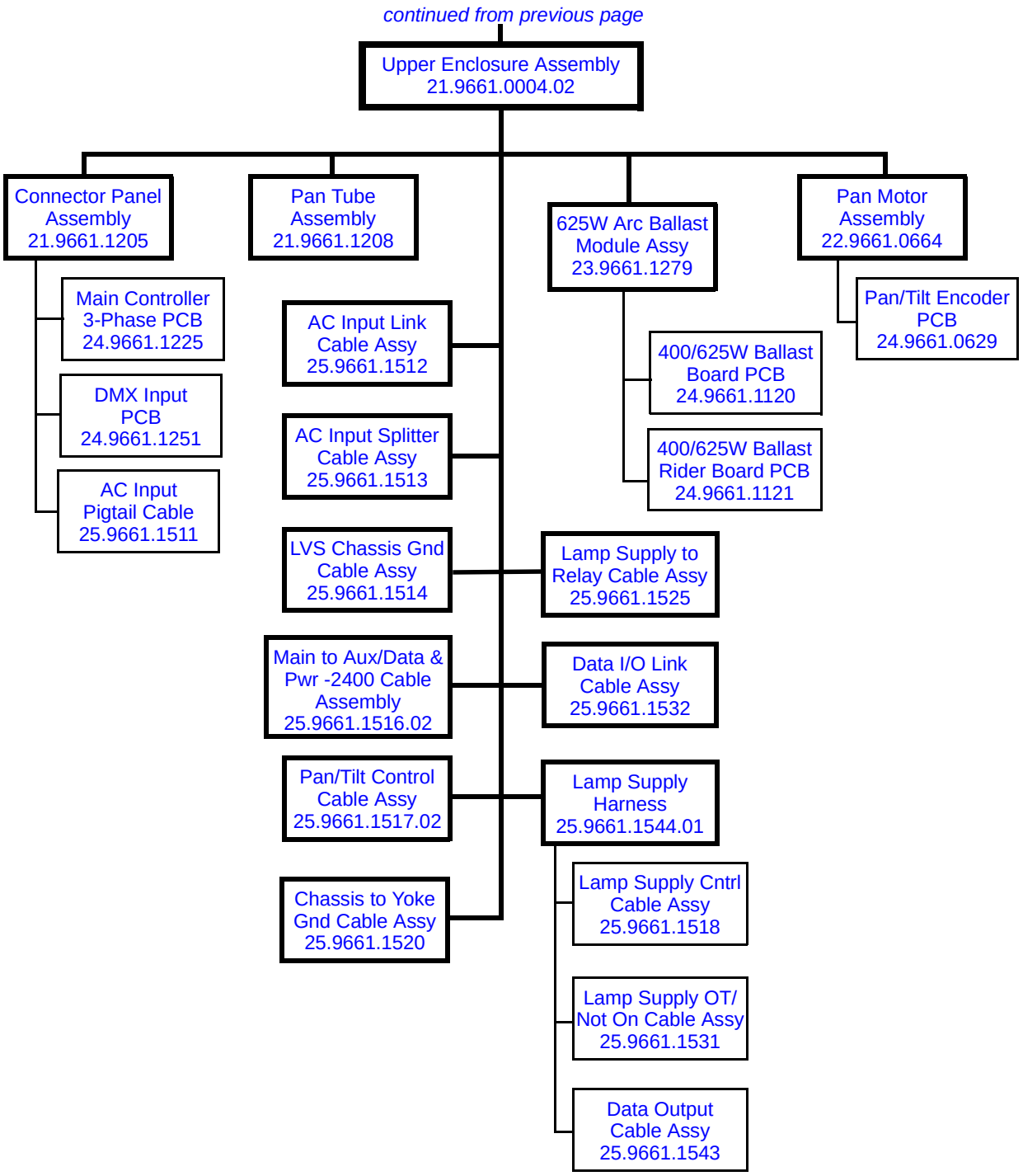
Chassis Assy 22.9661.0010.02
Heatsink Assy 20.9661.0001.02
Blu/Mag Bulkhead Assy 22.9661.0326
Amb/Dim Bulkhead Assy 22.9661.0327
Ignitor PCB Assembly 24.9661.1125
Aux Controller PCB Assy 24.9661.1400
Ignitor to Relay Cable Assy 25.9661.1526
Yoke Fan Power Cable Assy 25.9661.1533
Cooling Bulkhead Assy 22.9661.0200.02
Fan Duct Assy 22.9661.0210
Color Motor/Lamp Assy 23.9661.0438
Front Ring Assy 22.9661.0510
Drive Motor Assy 22.9661.0512
Rotating Ring Sensor PCB Assy 24.9661.0536
Center Hub Assy 22.9634.0119
Drive Ring Assy 22.9634.0143
Blue/Mag Motor Assy 22.9661.0308
Crank Color Assy 22.9661.0347
Magenta Filter Assy 22.9661.0322
Blue Filter Assy 22.9661.0323Rev
Dimmer Motor Assy 22.9661.0309
Drive Ring Assy 22.9634.0143
Center Hub Assy 22.9661.0317
Amber Filter Assy 22.9661.0324
Strobe Drive Ring Assy 22.9661.0343
Bulb Disconnect Assembly 23.9661.0220
Motor Harness Cable Assy 25.9661.1519
Beam Spreader/ Baffle Assy 22.9661.0409.02
Yoke to Head Gnd Cable Assy 25.9661.1521
Beam Spreader Assy 22.9661.0400
Beam Spreader Heatshield Assy 22.9661.0424
Color Motor/Lamp Fan Assy 23.9661.0438
Cam Ring Assy 22.9661.0443
Light Baffle Ring Bulkhead Assy 22.9661.0450
Concave Lens Assy 22.9661.0407
Convex Lens Assy 22.9661.0408
Cam Follower Shaft Assy 22.9661.0434
Light Baffle Center Assy 22.9661.0457

VL2414 Wash Luminaire (cont.)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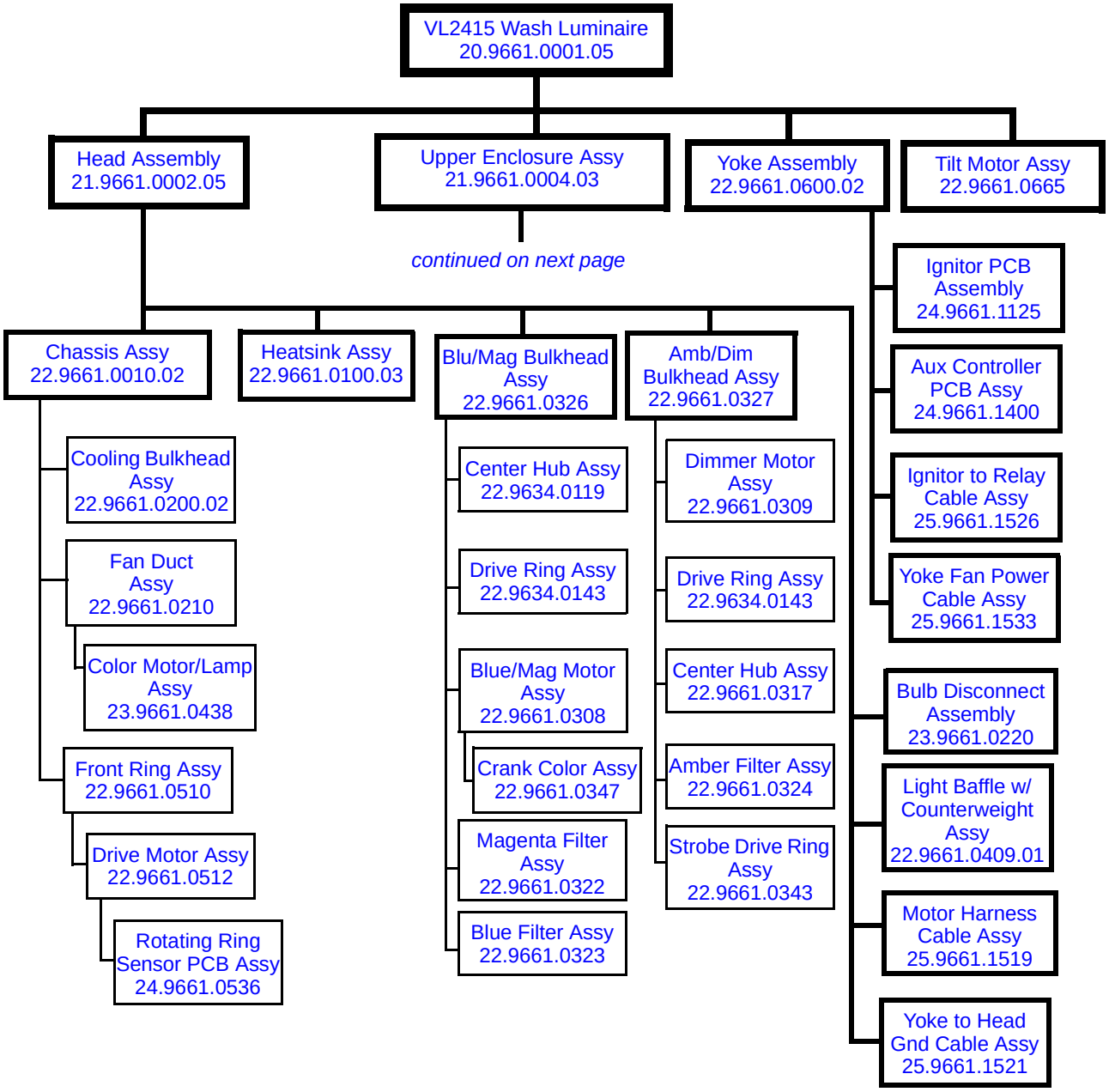
Upper Enclosure Assembly 21.9661.0004.02
Connector Panel Assembly 21.9661.1205
Main Controller 3-Phase PCB 24.9661.1225
DMX Input PCB 24.9661.1251
AC Input Pigtail Cable 25.9661.1511
Pan Tube Assembly 21.9661.1208
AC Input Link Cable Assy 25.9661.1512
AC Input Splitter Cable Assy 25.9661.1513
LVS Chassis Gnd Cable Assy 25.9661.1514
Main to Aux/Data & Pwr -2400 Cable Assembly 25.9661.1516.02
Pan/Tilt Control Cable Assy 25.9661.1517.02
Chassis to Yoke Gnd Cable Assy 25.9661.1520
625W Arc Ballast Module Assy 23.9661.1279
400/625W Ballast Board PCB 24.9661.1120
400/625W Ballast Rider Board PCB 24.9661.1121
Lamp Supply to Relay Cable Assy 25.9661.1525
Data I/O Link Cable Assy 25.9661.1532
Lamp Supply Harness 25.9661.1544.01
Lamp Supply Cntrl Cable Assy 25.9661.1518
Lamp Supply OT/ Not On Cable Assy 25.9661.1531
Data Output Cable Assy 25.9661.1543
Pan Motor Assembly 22.9661.0664
Pan/Tilt Encoder PCB 24.9661.0629

VL2415 Wash Luminaire (20.9661.0001.05)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Head Assembly 21.9661.0002.05
Upper Enclosure Assy 21.9661.0004.03
Yoke Assembly 22.9661.0600.02
Tilt Motor Assy 22.9661.0665
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Chassis Assy 22.9661.0010.02
Heatsink Assy 22.9661.0100.03
Blu/Mag Bulkhead Assy 22.9661.0326
Amb/Dim Bulkhead Assy 22.9661.0327
Cooling Bulkhead Assy 22.9661.0200.02
Fan Duct Assy 22.9661.0210
Color Motor/Lamp Assy 23.9661.0438
Front Ring Assy 22.9661.0510
Drive Motor Assy 22.9661.0512
Rotating Ring Sensor PCB Assy 24.9661.0536
Center Hub Assy 22.9634.0119
Drive Ring Assy 22.9634.0143
Blue/Mag Motor Assy 22.9661.0308
Crank Color Assy 22.9661.0347
Magenta Filter Assy 22.9661.0322
Blue Filter Assy 22.9661.0323
Dimmer Motor Assy 22.9661.0309
Drive Ring Assy 22.9634.0143
Center Hub Assy 22.9661.0317
Amber Filter Assy 22.9661.0324
Strobe Drive Ring Assy 22.9661.0343
Ignitor PCB Assembly 24.9661.1125
Aux Controller PCB Assy 24.9661.1400
Ignitor to Relay Cable Assy 25.9661.1526
Yoke Fan Power Cable Assy 25.9661.1533
Bulb Disconnect Assembly 23.9661.0220
Light Baffle w/ Counterweight Assy 22.9661.0409.01
Motor Harness Cable Assy 25.9661.1519
Yoke to Head Gnd Cable Assy 25.9661.1521

VL2415 Wash Luminaire (cont.)

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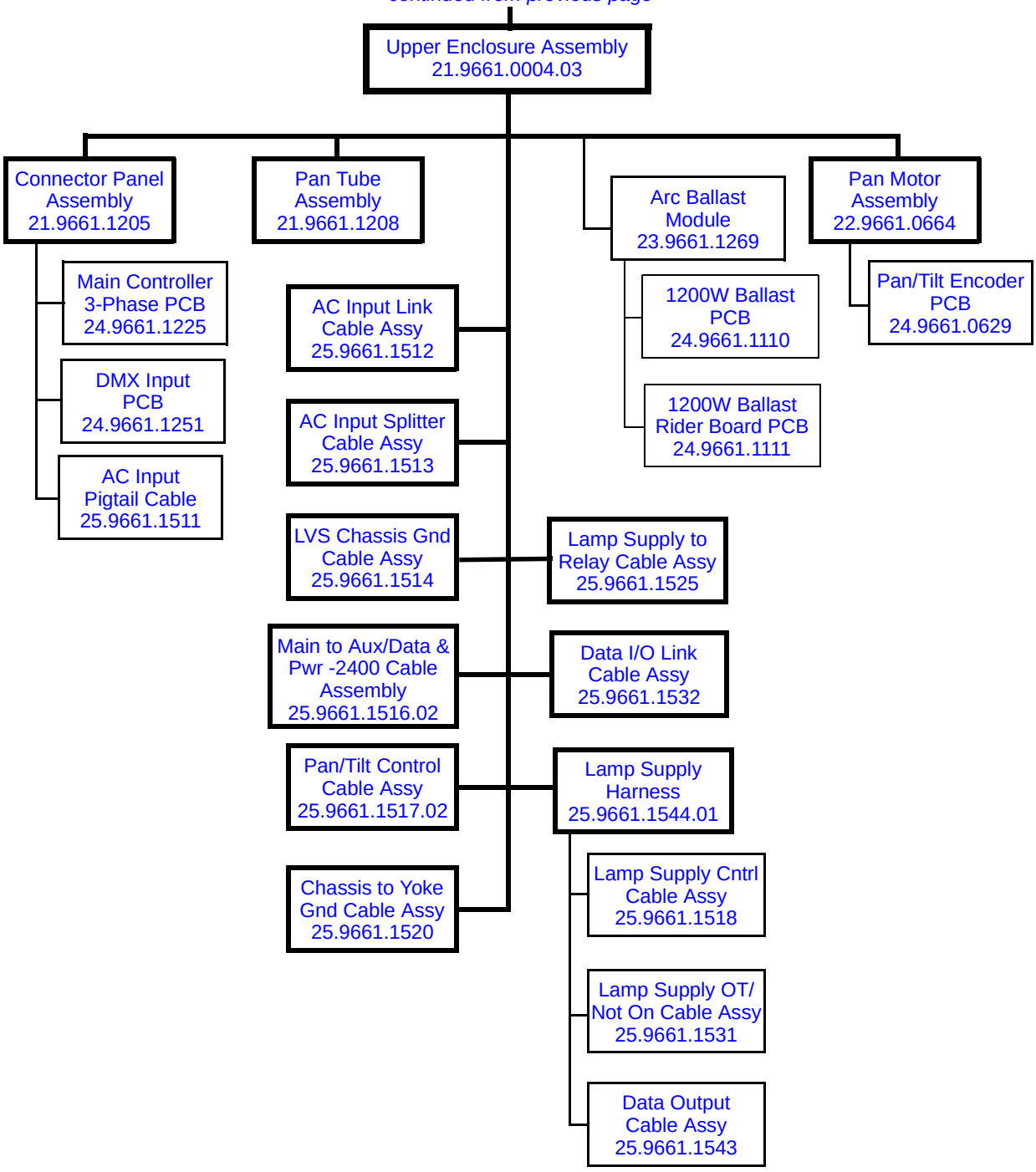
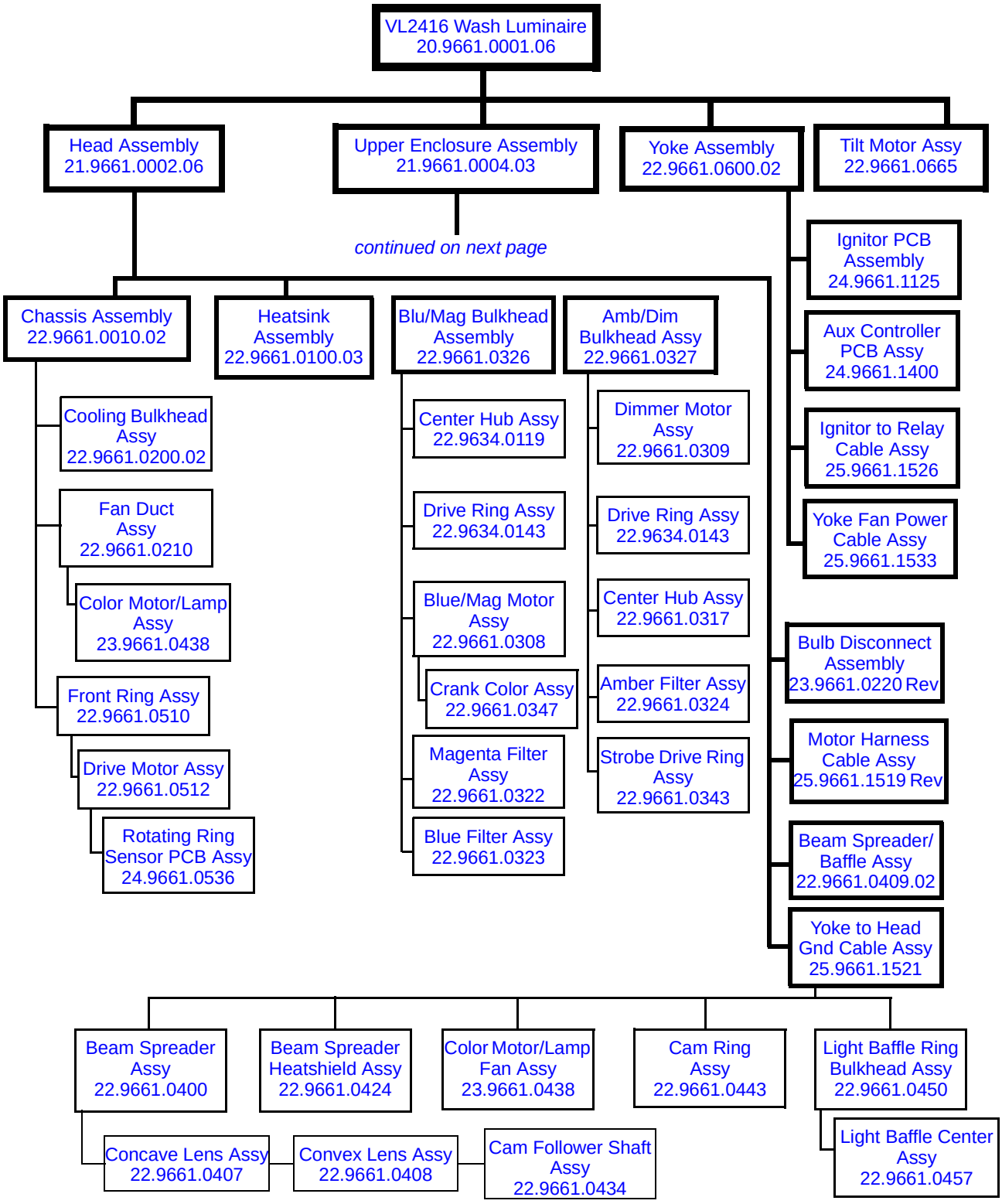
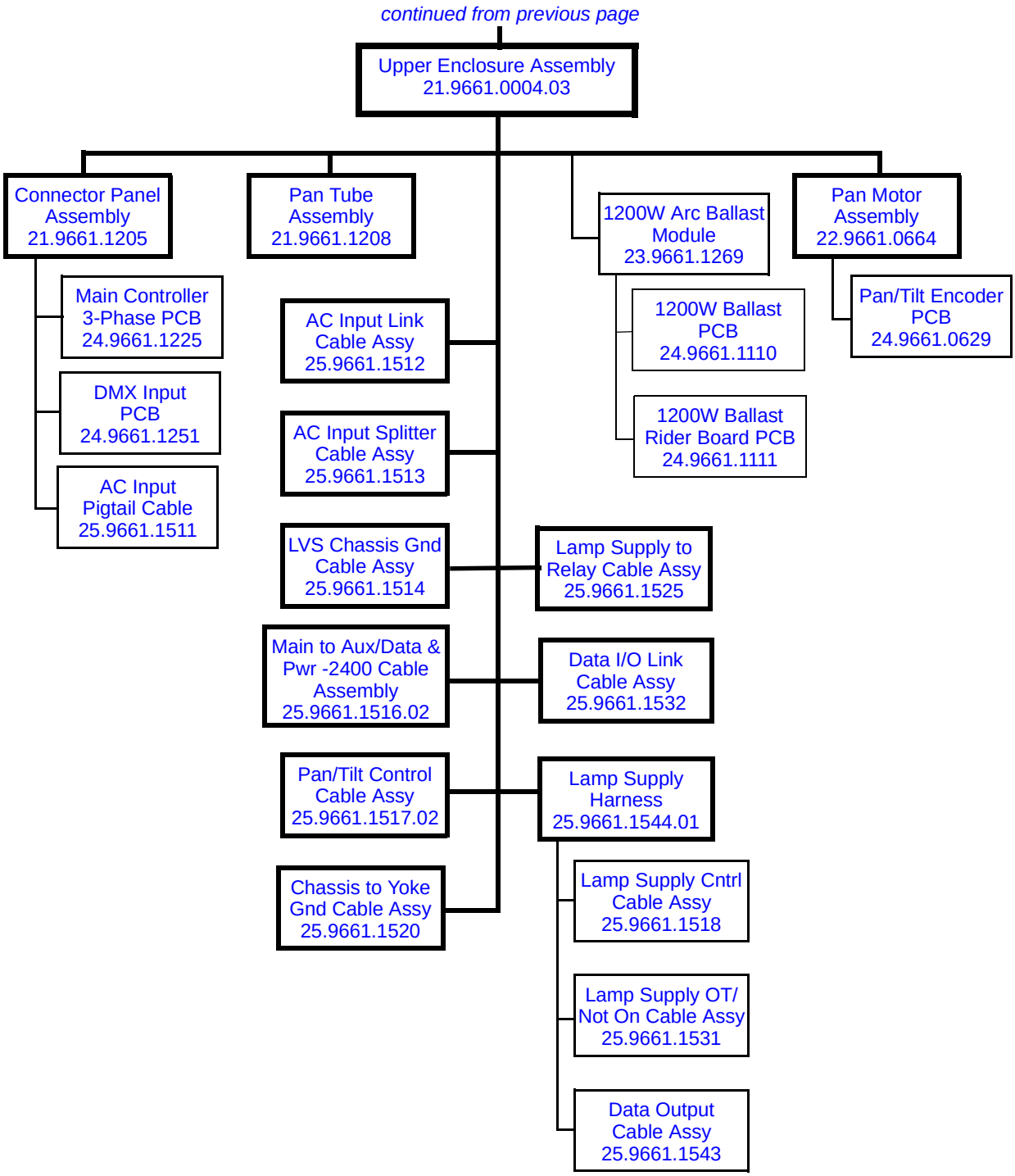

Upper Enclosure Assembly 21.9661.0004.03
Connector Panel Assembly 21.9661.1205
Main Controller 3-Phase PCB 24.9661.1225
DMX Input PCB 24.9661.1251
AC Input Pigtail Cable 25.9661.1511
Pan Tube Assembly 21.9661.1208
AC Input Link Cable Assy 25.9661.1512
AC Input Splitter Cable Assy 25.9661.1513
LVS Chassis Gnd Cable Assy 25.9661.1514
Main to Aux/Data & Pwr -2400 Cable Assembly 25.9661.1516.02
Pan/Tilt Control Cable Assy 25.9661.1517.02
Chassis to Yoke Gnd Cable Assy 25.9661.1520
Arc Ballast Module 23.9661.1269
1200W Ballast PCB 24.9661.1110
1200W Ballast Rider Board PCB 24.9661.1111
Pan Motor Assembly 22.9661.0664
Pan/Tilt Encoder PCB 24.9661.0629
Lamp Supply to Relay Cable Assy 25.9661.1525
Data I/O Link Cable Assy 25.9661.1532
Lamp Supply Harness 25.9661.1544.01
Lamp Supply Cntrl Cable Assy 25.9661.1518
Lamp Supply OT/ Not On Cable Assy 25.9661.1531
Data Output Cable Assy 25.9661.1543

VL2416 Wash Luminaire (20.9661.0001.06)


VL2416 Wash Luminaire 20.9661.0001.06
Head Assembly 21.9661.0002.06
Upper Enclosure Assembly 21.9661.0004.03
Yoke Assembly 22.9661.0600.02
Tilt Motor Assy 22.9661.0665
continued on next page
Chassis Assembly 22.9661.0010.02
Heatsink Assembly 22.9661.0100.03
Blu/Mag Bulkhead Assembly 22.9661.0326
Amb/Dim Bulkhead Assy 22.9661.0327
Ignitor PCB Assembly 24.9661.1125
Aux Controller PCB Assy 24.9661.1400
Ignitor to Relay Cable Assy 25.9661.1526
Yoke Fan Power Cable Assy 25.9661.1533
Cooling Bulkhead Assy 22.9661.0200.02
Fan Duct Assy 22.9661.0210
Color Motor/Lamp Assy 23.9661.0438
Front Ring Assy 22.9661.0510
Drive Motor Assy 22.9661.0512
Rotating Ring Sensor PCB Assy 24.9661.0536
Center Hub Assy 22.9634.0119
Drive Ring Assy 22.9634.0143
Blue/Mag Motor Assy 22.9661.0308
Crank Color Assy 22.9661.0347
Magenta Filter Assy 22.9661.0322
Blue Filter Assy 22.9661.0323
Dimmer Motor Assy 22.9661.0309
Drive Ring Assy 22.9634.0143
Center Hub Assy 22.9661.0317
Amber Filter Assy 22.9661.0324
Strobe Drive Ring Assy 22.9661.0343
Bulb Disconnect Assembly 23.9661.0220 Rev
Motor Harness Cable Assy 25.9661.1519 Rev
Beam Spreader/ Baffle Assy 22.9661.0409.02
Yoke to Head Gnd Cable Assy 25.9661.1521
Beam Spreader Assy 22.9661.0400
Beam Spreader Heatshield Assy 22.9661.0424
Color Motor/Lamp Fan Assy 23.9661.0438
Cam Ring Assy 22.9661.0443
Light Baffle Ring Bulkhead Assy 22.9661.0450
Concave Lens Assy 22.9661.0407
Convex Lens Assy 22.9661.0408
Cam Follower Shaft Assy 22.9661.0434
Light Baffle Center Assy 22.9661.0457

VL2416 Wash Luminaire (cont.)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Upper Enclosure Assembly 21.9661.0004.03
Connector Panel Assembly 21.9661.1205
Main Controller 3-Phase PCB 24.9661.1225
DMX Input PCB 24.9661.1251
AC Input Pigtail Cable 25.9661.1511
Pan Tube Assembly 21.9661.1208
AC Input Link Cable Assy 25.9661.1512
AC Input Splitter Cable Assy 25.9661.1513
LVS Chassis Gnd Cable Assy 25.9661.1514
Main to Aux/Data & Pwr -2400 Cable Assembly 25.9661.1516.02
Pan/Tilt Control Cable Assy 25.9661.1517.02
Chassis to Yoke Gnd Cable Assy 25.9661.1520
1200W Arc Ballast Module 23.9661.1269
1200W Ballast PCB 24.9661.1110
1200W Ballast Rider Board PCB 24.9661.1111
Lamp Supply to Relay Cable Assy 25.9661.1525
Data I/O Link Cable Assy 25.9661.1532
Lamp Supply Harness 25.9661.1544.01
Lamp Supply Cntrl Cable Assy 25.9661.1518
Lamp Supply OT/ Not On Cable Assy 25.9661.1531
Data Output Cable Assy 25.9661.1543
Pan Motor Assembly 22.9661.0664
Pan/Tilt Encoder PCB 24.9661.0629

Top Assembly

Included Items Kit

28.9661.0001.01 (VL2411) Rev F
28.9661.0001.02 (VL2412) Rev F
28.9661.0001.03 (VL2413) Rev F
28.9661.0001.04 (VL2414) Rev F
28.9661.0001.05 (VL2415) Rev F
28.9661.0001.06 (VL2416) Rev F

Refer to Figure 3-1.

No.	Item	Qty.	UM.	Description
1	02.8001.0001	1	EA	PRODUCT SUPPORT SHEET, VARI-LITE INC. CUSTOMER SERVICE
2	02.8051.0001	1	EA	CARD, LIMITED WARRANTY 01-16-01
3	02.8700.0001	1	EA	CARD, PRODUCT REGISTRATION - VL2000
4	02.9661.0001	1	EA	USER'S MANUAL, VL2416 WASH LUMINAIRE
5	02.9661.0002	1	EA	UNPACK/QUICK START SHEET, VL2400
6	07.9661.0014	1	EA	SHIPPING BOX, CARDBOARD - VL2400 PLAIN W/FOAM INSERT
7	22.9661.1636	2	EA	FAB ASSY, BRACKET TRUSS HOOK
8	71.2526.0100	1	EA	1000 WATT, 100V LAMP (**VL2411 & VL2412 ONLY**)
	71.2526.0230	1	EA	1000 WATT, 230V LAMP (**VL2411 & VL2412 ONLY**)
	71.2529.0120	1	EA	1200 WATT, 120V LAMP (**VL2411 & VL2412 ONLY**)
	71.2528.0575	1	EA	575 WATT ARC LAMP-PHILIPS MSR575HR (**VL2413 & VL2414 ONLY**)
	71.2528.1200	1	EA	1200 WATT ARC LAMP (**VL2415 & VL2416 ONLY**)

Included Items Kit (cont.)

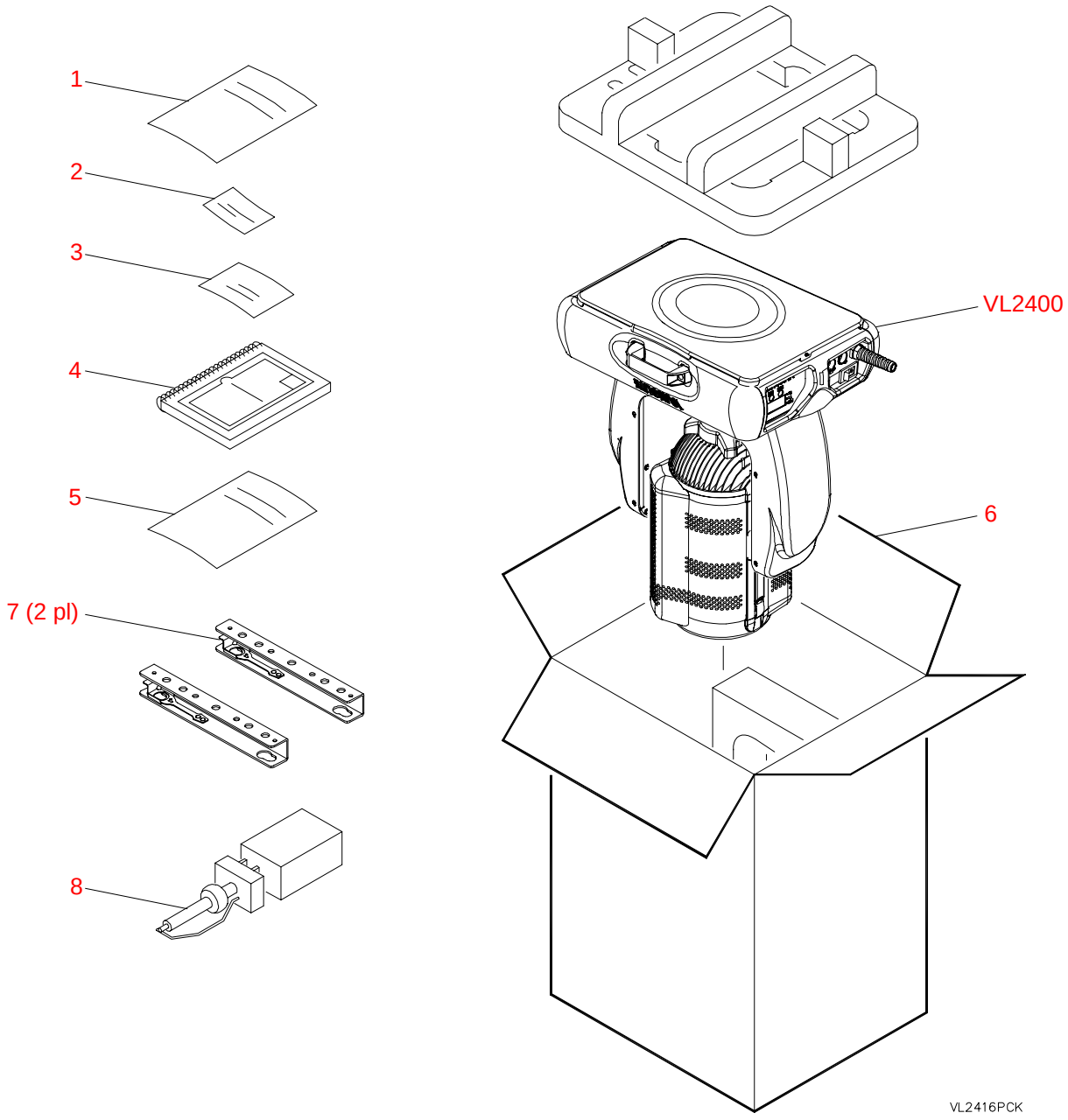


Figure 3-1: Included Items

Top Assembly

VL2400 Series Wash Luminaires

20.9661.0001.01 (VL2411: 1200W Incandescent) Rev E
20.9661.0001.02 (VL2412: 1200W Incandescent) Rev E
20.9661.0001.03 (VL2413: 625W Arc) Rev E
20.9661.0001.04 (VL2414: 625W Arc) Rev E
20.9661.0001.05 (VL2415: 1200W Arc) Rev E
20.9661.0001.06 (VL2416: 1200W Arc) Rev E

Refer to Figure 3-2.

No.	Item	Qty.	UM.	Description
1	10.9661.0617	1	EA	YOKE CROSSMEMBER, HEAT SHIELD
2	10.9661.0632	2	EA	COVER, YOKE THERMOFORM
3	10.9661.0647	1	EA	DAMPER BRACKET
4	12.9661.0657	1	EA	TILT DAMPER, 2400 YOKE STRUCTURE
5	16.9661.0006.01	1	EA	ASSY, VL2411 LABEL LOCATION
	16.9661.0006.02	1	EA	ASSY, VL2412 LABEL LOCATION
	16.9661.0006.03	1	EA	ASSY, VL2413 LABEL LOCATION
	16.9661.0006.04	1	EA	ASSY, VL2414 LABEL LOCATION
	16.9661.0006.05	1	EA	ASSY, VL2415 LABEL LOCATION
	16.9661.0006.06	1	EA	ASSY, VL2416 LABEL LOCATION
6	21.9661.0002.01	1	EA	ASSY, HEAD WO/BS 1200W INCANDESCENT **(VL2411 ONLY)**
	21.9661.0002.02	1	EA	ASSY, HEAD W/BS 1200W INCANDESCENT **(VL2412 ONLY)**
	21.9661.0002.03	1	EA	ASSY, HEAD W/OBS 625W ARC **(VL2413 ONLY)**
	21.9661.0002.04	1	EA	ASSY, HEAD W/BS 625W ARC **(VL2414 ONLY)**
	21.9661.0002.05	1	EA	ASSY, HEAD W/OBS 1200W ARC **(VL2415 ONLY)**
	21.9661.0002.06	1	EA	ASSY, HEAD W/BS 1200W ARC **(VL2416 ONLY)**
7	21.9661.0004.01	1	EA	ASSY, ENCLOSURE, 1200W INCANDESCENT **(VL2411/VL2412 ONLY)**
	21.9661.0004.02	1	EA	ASSY, ENCLOSURE 625W ARC **(VL2413/VL2414 ONLY)**
	21.9661.0004.03	1	EA	ASSY, ENCLOSURE, 1200W ARC **(VL2415/VL2416 ONLY)**
8	22.9661.0600.01	1	EA	ASSY, YOKE (INCANDESCENT) **(VL2411/VL2412 ONLY)**
	22.9661.0600.02	1	EA	ASSY, YOKE (ARC) **(VL2413/VL2414/VL2415/VL2416 ONLY)**
9	22.9661.0636	2	EA	FAB ASSY, YOKE FILLER PANEL
10	22.9661.0665	1	EA	ASSY, TILT MOTOR
11	53.2002.0003	1	EA	NUT, 6-32 HEX ZINC NYLON INSERT
12	53.6525.0001	1	EA	SCREW, 6-32 X 5/16" PPZ
13	53.6553.0002	8	EA	SCREW, 10-32 X 5/16" PPB

No.	Item	Qty.	UM.	Description
14	53.6610.0005	15	EA	SCREW, 6-32 X 7/16" PPB
15	53.6614.0003	1	EA	SCREW, 6-32 X 5/8" PFZ
16	53.7003.0625	5	EA	SCREW, 1/4-28 X 5/8" HEX HD CAP SS
17	54.2039.0001	1	EA	BELT, GT TIMING 2MM PITCH 182GRV 9MM WD NYL CVRD FBRGLS NEOP
18	55.2114.0001	8	EA	WASHER, #10 LOCK INT TOOTH
19	55.2132.0006	1	EA	STANDOFF, 1/4" HEX 6-32 1.188" LG M/F SS
20	55.2178.0001	1	EA	CABLE ANCHOR MOUNT, #8 SCREW MOUNTING
21	55.2186.0001	1	EA	CABLE TIE, .10" WD 4.00" LG SMALL
22	55.6538.0001	4	EA	WASHER, #6 LOCK INTERNAL TOOTH
23	55.6549.0001	5	EA	WASHER, 1/4" SPLIT LOCK
24	55.6568.0046	1	EA	SPRING, BLUE EXTSN .120" OD .50" LG .020" WIRE DIA SS

VL2400 Series Wash Luminaires (cont.)

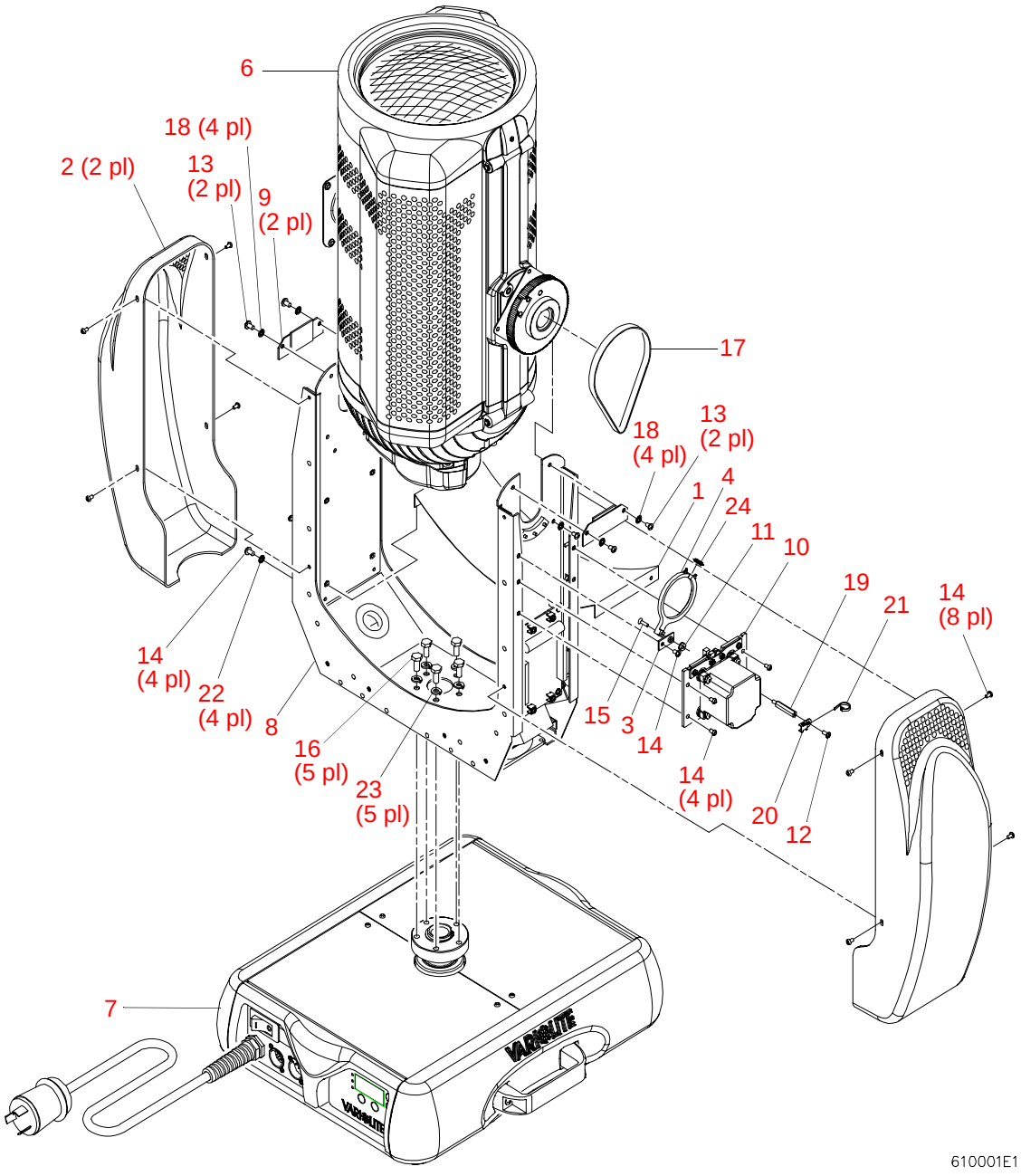


Figure 3-2: Top Assembly

Head

Head Assembly

21.9661.0002.01 (VL2411) Rev G
21.9661.0002.02 (VL2412) Rev G
21.9661.0002.03 (VL2413) Rev G
21.9661.0002.04 (VL2414) Rev G
21.9661.0002.05 (VL2415) Rev G
21.9661.0002.06 (VL2416) Rev G

Refer to Figure 3-3 and Figure 3-4.

No.	Item	Qty.	UM.	Description
1	10.9661.0020	1	EA	PIN, HINGE CHASSIS
2	10.9661.0086	2	EA	COVER, HEAD
3	10.9661.0310	1	EA	WIRE COVER PLATE, HINGE RAIL
4	10.9661.0311	1	EA	WIRE COVER PLATE, LATCH RAIL
5	10.9661.0336	1	EA	CLIP, COVER GROUND
6	22.9661.0010.01	1	EA	ASSY, CHASSIS
7	22.9661.0100.01	1	EA	ASSY, HEATSINK 1200W INCANDESCENT **(VL2411/VL2412 ONLY)**
	22.9661.0100.02	1	EA	ASSY, HEATSINK 625W ARC **(VL2413/VL2414 ONLY)**
	22.9661.0100.03	1	EA	ASSY, HEATSINK 1200W ARC **(VL2415/VL2416 ONLY)**
8	22.9661.0326	1	EA	ASSY, BLU/MAG BULKHEAD
9	22.9661.0327	1	EA	ASSY, AMB/DIM BULKHEAD
10	22.9661.0409.01	1	EA	ASSY, LIGHT BAFFLE W/COUNTER WEIGHT **(VL2411/VL2413/VL2415 ONLY)**
	22.9661.0409.02	1	EA	ASSY, BAFFLE/BEAM SPREADER **(VL2412/VL2414/VL2416 ONLY)**
11	23.9661.0220	1	EA	ASSY, BULB DISCONNECT
	25.9661.1519	1	EA	CABLE ASSY, MOTOR HARNESS **(not shown)**
	25.9661.1521	1	EA	CABLE ASSY, YOKE TO HEAD GND **(not shown)**
12	53.6517.0625	1	EA	SCREW, 10-32 X 5/8" PPZ
13	53.6524.0002	12	EA	SCREW, 6-32 X 5/16" PPB
14	53.6597.0002	5	EA	SCREW, 4-40 X 3/16" PPB
15	53.6600.0001	2	EA	SCREW, 4-40 X 5/16" PPB
16	54.1226.0002	1	EA	STRIKE, (VL5 LATCH CATCH)
17	55.2186.0001	4	EA	CABLE TIE, .10"WD 4.00"LG SMALL
18	55.2186.0002	6	EA	CABLE TIE, .09"WD 3.750"LG TEFZEL
19	55.2203.0001	1	EA	SCREW, 4-40 X 1/4 " PPZ
20	55.2233.0188	2	EA	PUSH RETAINER, WASHER, .188 SHAFT, BLACK

No.	Item	Qty.	UM.	Description
21	55.6504.0002	1	EA	WASHER, #8 LOCK EXT TOOTH
22	55.6537.0001	1	EA	WASHER, #4 LOCK INTERNAL TOOTH
23	55.6706.0001	1	EA	GROMMET, 9/32"ID 9/16"OD 1/4T SILICONE RED

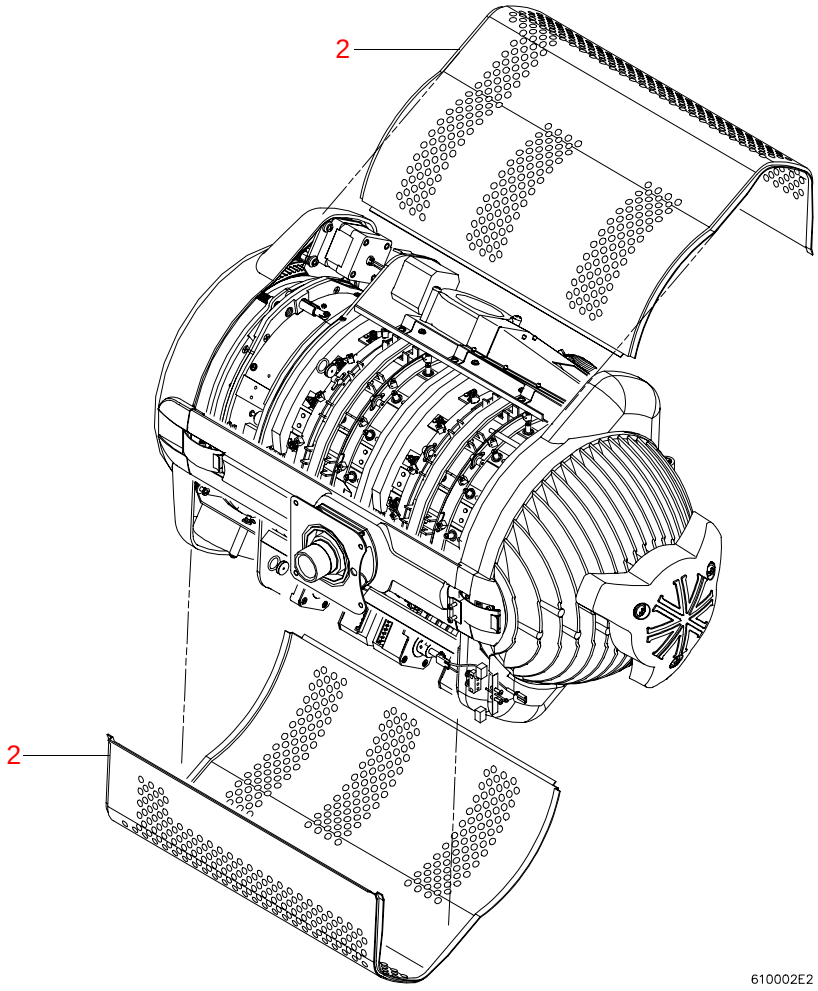


Figure 3-3: Head Covers

Head Assembly (cont.)

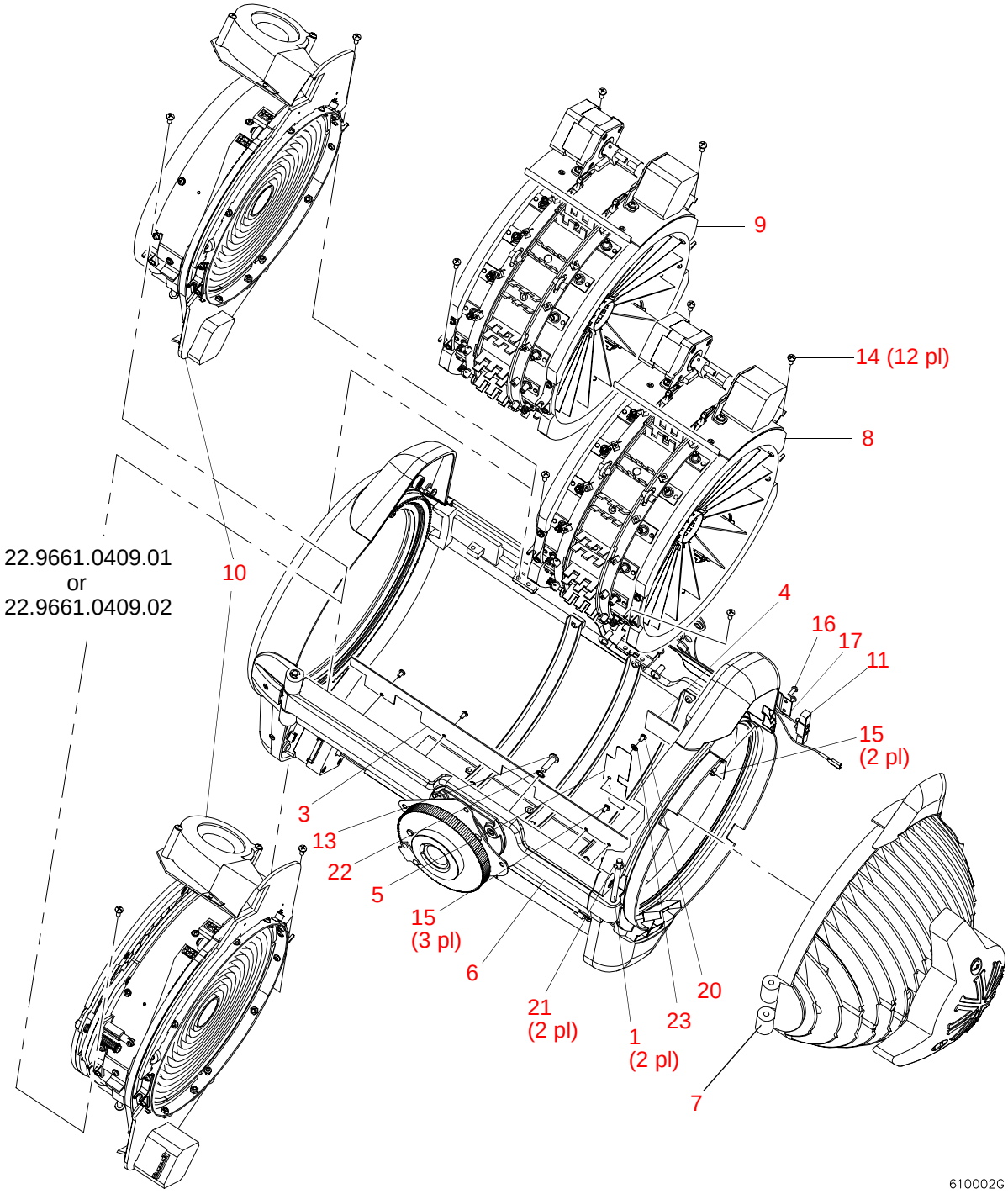


Figure 3-4: Head Assembly

Chassis Assembly

22.9661.0010.01 (VL2411/VL2412) Rev E
22.9661.0010.02 (VL2413/VL2414/VL2415/VL2416) Rev E

Refer to Figure 3-5.

No.	Item	Qty.	UM.	Description
1	10.9661.0020	1	EA	PIN, HINGE CHASSIS
2	10.9661.0030	2	EA	HEAT INSULATOR, TILT TUBE
3	10.9661.0215	1	EA	HEAT SHIELD, FAN
4	10.9661.0216	3	EA	SUPPORT, FAN HEAT SHIELD
5	12.9661.0331	1	EA	MACHINED, HINGE RAIL
6	12.9661.0333	1	EA	MACHINED, LATCH RAIL
7	22.9661.0031	1	EA	ASSY, TILT TUBE BEARING & PULLEY -VL2400
-	12.9661.0029	1	EA	MACHINED, TILT TUBE
-	22.9661.0601	1	EA	ASSY, PAN/TILT BEARING
-	22.9661.0607	1	EA	ASSY, DRIVEN PULLEY
8	22.9661.0032	1	EA	ASSY, TILT TUBE & BEARING
-	12.9661.0029	1	EA	MACHINED, TILT TUBE
-	22.9664.0601	1	EA	ASSY, PAN/TILT BEARING
9	22.9661.0200.01	1	EA	ASSY, UV BULKHEAD, INCANDESCENT **(VL2411/VL2412 ONLY)**
	22.9661.0200.02	1	EA	ASSY, UV BULKHEAD, ARC **(VL2413/VL2414/VL2415/VL2416 ONLY)**
10	22.9661.0210	1	EA	ASSY, FAN DUCT
11	22.9661.0510	1	EA	ASSY, FRONT RING
12	53.6551.0001	2	EA	SCREW, 4-40 X 3/8" PPB
13	53.6552.0001	4	EA	SCREW, 8-32 X 1/2" PFZ
14	53.6556.0004	8	EA	SCREW, 4-40 X 1/8 " PPB
15	53.6597.0001	6	EA	SCREW, 4-40 X 3/16" PPZ
16	53.6597.0002	6	EA	SCREW, 4-40 X 3/16" PPB
17	53.6607.0001	6	EA	SCREW, 6-32 X 1/4" PPB
18	53.6625.0001	1	EA	SCREW, 10-32 X 1/2" PPB
19	54.1226.0001	1	EA	LATCH ASSY, VL5
20	55.2233.0188	2	EA	PUSH RETAINER, WASHER, .188 SHAFT, BLACK
21	55.6537.0001	12	EA	WASHER, #4 LOCK INTERNAL TOOTH

Chassis Assembly (cont.)

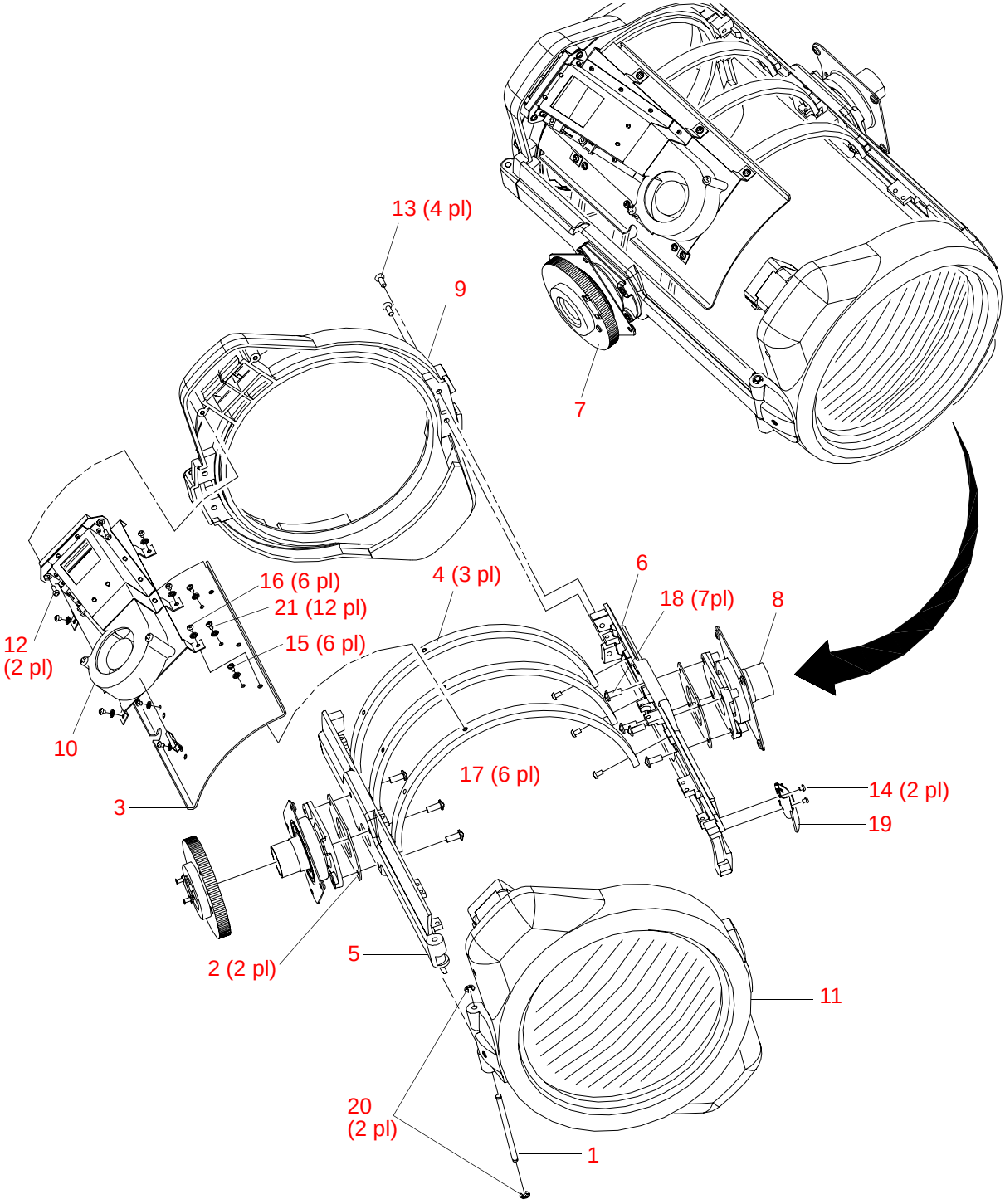


Figure 3-5: Chassis Assembly

Cooling Bulkhead Assembly

22.9661.0200.01 (VL2411/2412 ONLY) Rev F

Refer to Figure 3-6.

No.	Item	Qty.	UM.	Description
1	10.9661.0205	2	EA	AIR TURNING, VANE
2	10.9661.0209	1	EA	INSULATION, EXHAUST WALL
3	12.9661.0202	1	EA	UV BULKHEAD, MACHINED CASTING
4	12.9661.0206	1	EA	GASKET, GLASS BACK
5	42.5002.0004	1	EA	GLASS, VL5/VL2400 FRONT, CLEAR

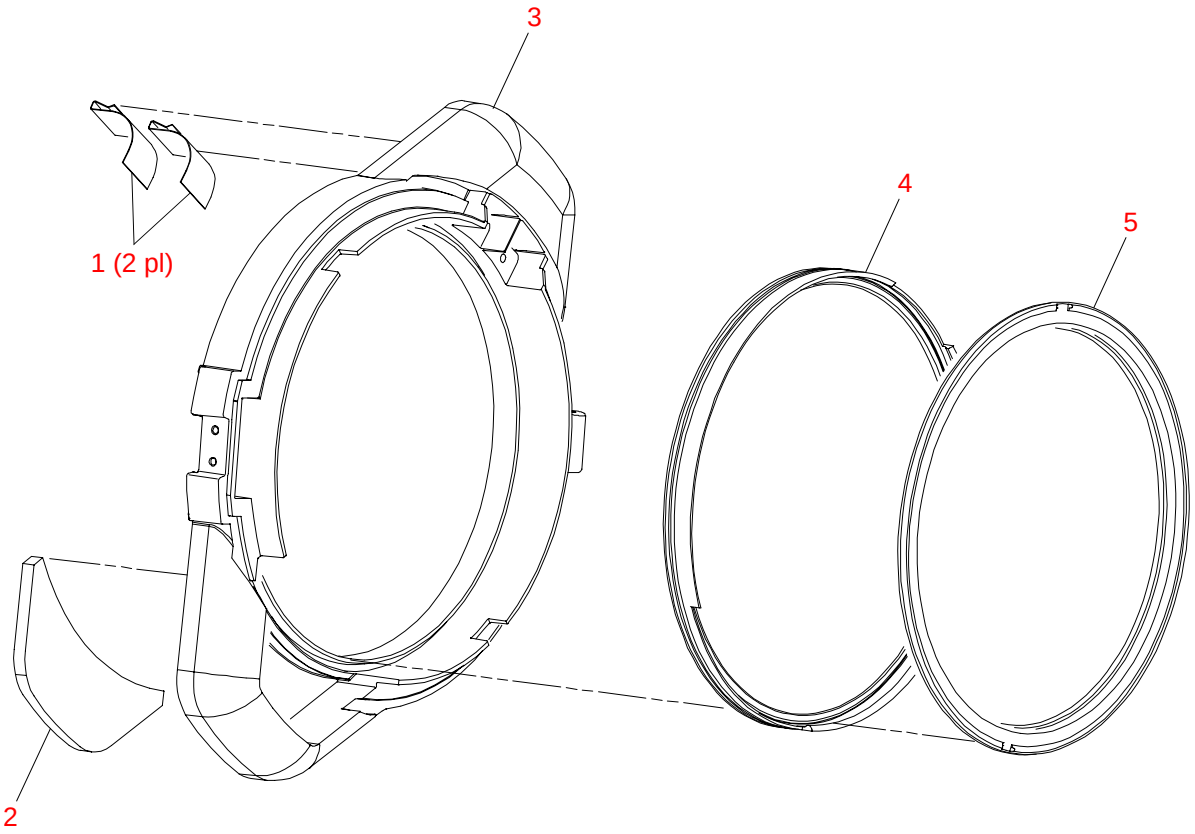


Figure 3-6: Cooling Bulkhead Assembly VL2411/VL2412

Cooling Bulkhead Assembly

22.9661.0200.02 (VL2413/2414/2415/VL2416) Rev F

Refer to Figure 3-7.

No.	Item	Qty.	UM.	Description
1	10.9661.0205	2	EA	AIR TURNING, VANE
2	10.9661.0209	1	EA	INSULATION, EXHAUST WALL
3	10.9661.0234	3	EA	CLIP, UV GLASS
4	10.9661.0226	1	EA	AIR DIVERTER, LAMP BASE
5	12.9661.0202	1	EA	UV BULKHEAD, MACHINED CASTING
6	42.9661.0235	1	EA	UV GLASS, FLAT 7.650 OD
7	53.6543.0002	1	EA	SCREW, 6-32 X 1/8" PPB

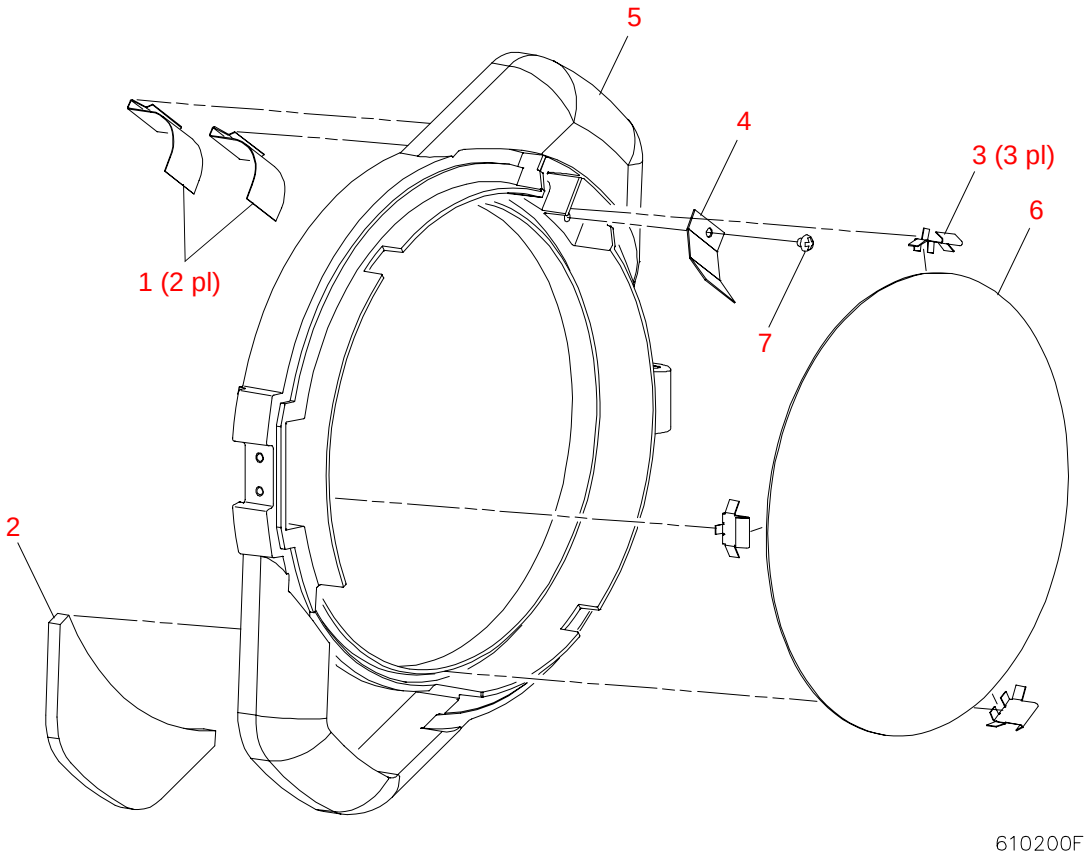


Figure 3-7: Cooling Bulkhead Assembly VL2413/VL2414/VL2415/VL2416

Fan Duct Assembly

22.9661.0210 Rev F

Refer to Figure 3-8.

No.	Item	Qty.	UM.	Description
1	10.9661.0211	1	EA	FAN DUCT, BOTTOM
2	10.9661.0212	1	EA	FAN DUCT, TOP
3	10.9661.0213	1	EA	FLANGE PLATE, FAN DUCT
4	10.9661.0214	1	EA	GASKET, FAN DUCT INTERFACE
5	10.9661.0217	1	EA	FLAP, EXHAUST VALVE
6	10.9661.0218	1	EA	BACKING PLATE, FLAP
7	10.9661.0219	1	EA	GASKET, EXHAUST VALVE
8	23.9661.0438	1	EA	FAN ASSY, COLOR MOTOR/LAMP
9	53.2003.0001	2	EA	NUT, 4-40 KEP ZINC PLATED
10	53.6534.0001	14	EA	RIVET, 3/32" OD POP 3/32GRIP RANGE ALUM
11	53.5506.1375	2	EA	SCREW, 6-32 X 1 3/8" PPB
12	53.5646.0250	2	EA	SCREW, 4-40 X 1/4" LG PTZ
13	55.2178.0001	1	EA	CABLE ANCHOR MOUNT, #8 SCREW MOUNTING
14	74.1006.0005	1	EA	SWITCH, THERMAL 130°C PCB MOUNT

Fan Duct Assembly (cont.)

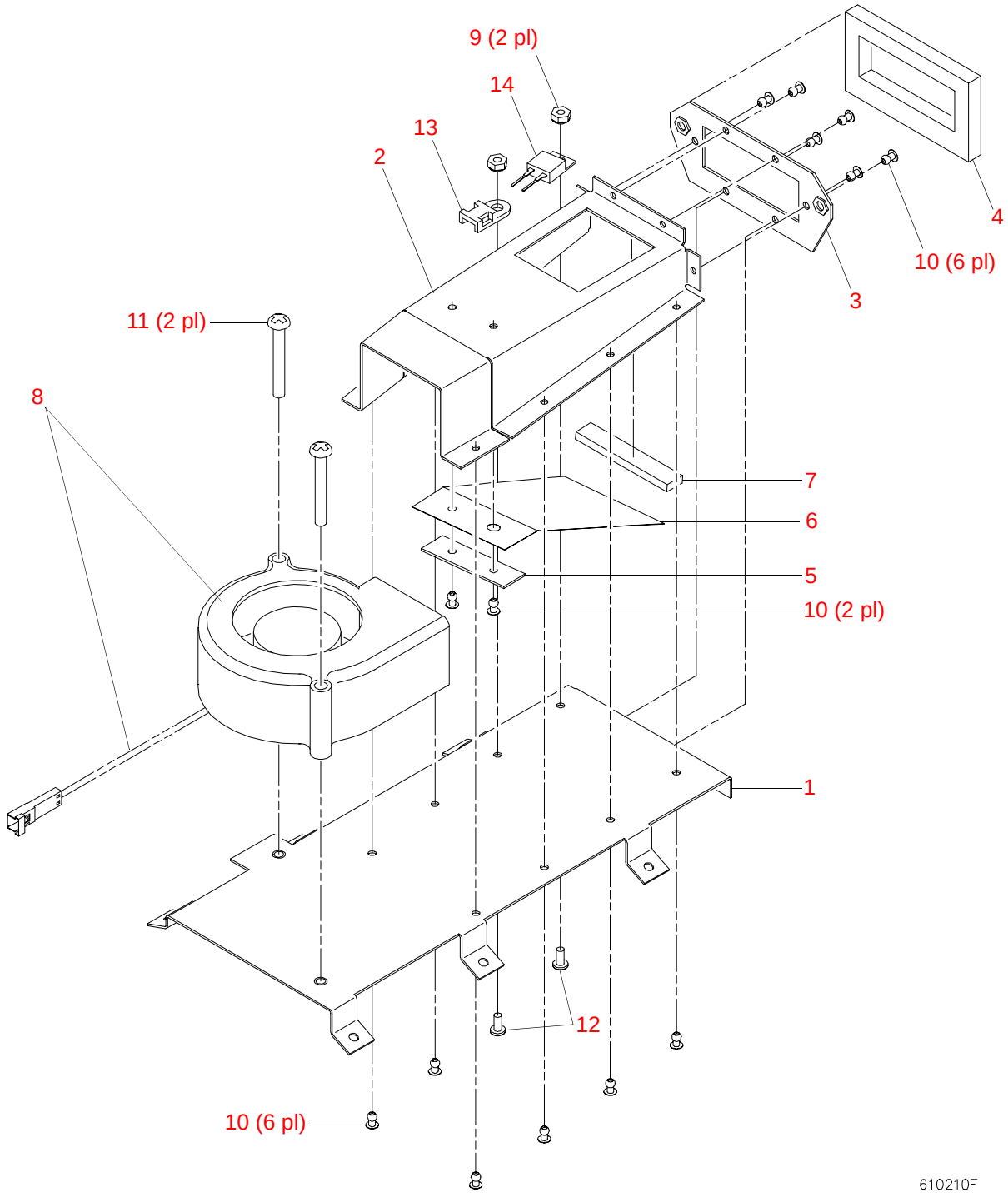


Figure 3-8: Fan Duct Assembly

Color Motor/Lamp Fan Assembly

23.9661.0438 Rev A

Refer to Figure 3-9.

No.	Item	Qty.	UM.	Description
1	40.7140.0001	1	EA	BLOWER, CENTRIFUGAL 24VDC 9CFM 3" X 3"
2	52.6523.0002	1	EA	CONN, HOUSING 2POS PLUG SHROUDED WIRE TO WIRE
3	52.8347.0001	2	EA	CONTACT, 24-30AWG MALE CRIMP

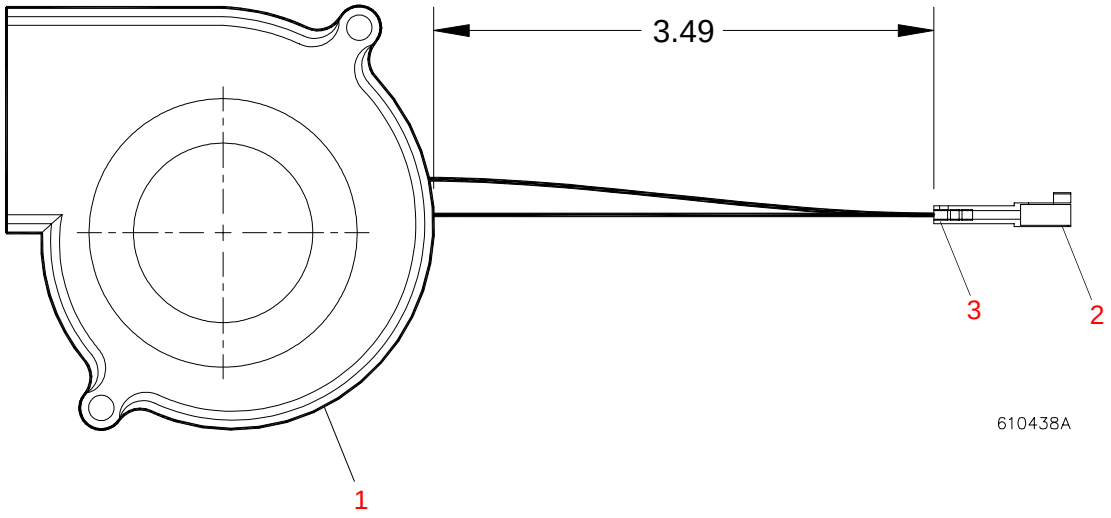


Figure 3-9: Color Motor/Lamp Fan Assembly

Front Ring Assembly

22.9661.0510 Rev F

Refer to Figure 3-10.

No.	Item	Qty.	UM.	Description
1	10.9661.0531	4	EA	STANDOFF, .187" O.D. 6-32 X .500" M/F SS
2	10.9661.0535	8	EA	BEARING WHEEL, PLASTIC
3	12.9661.0521	1	EA	MACHINED, FRONT RING
4	22.9661.0511	1	EA	ASSY, ROTATING LENS HOLDER
-	10.9634.0162	1.00	FT	PAD, VL5 FRONT RING
-	12.9661.0523	1	EA	MACHINED, LENS HOLDER
-	42.5002.0005	1	EA	GLASS, VL5 FRONT, STIPPLE
-	55.6001.0001	1	EA	MAGNET, 0.1" DIA. X 0.1" SMCO5
5	22.9661.0512	1	EA	ASSY, DRIVE MOTOR
6	53.2003.0001	2	EA	NUT, 4-40 KEP ZINC PLATED
7	53.6522.0001	2	EA	SCREW, 6-32 X 1/4" PPZ
8	53.6598.0312	2	EA	SCREW, 4-40 X 5/16" PFB
9	53.6610.0003	4	EA	SCREW, 6-32 X 7/16" PPZ
10	54.1249.0002	8	EA	BEARING, .1875" BORE .3125" OD DBL SHIELD
11	54.2035.0002	1	EA	BELT, TIMING XL .200" PITCH 145 GROOVE 1/4" WD
12	55.2178.0001	2	EA	CABLE ANCHOR MOUNT, #8 SCREW MOUNTING
13	55.6528.0001	4	EA	WASHER, #6 FLAT ZINC
14	55.6538.0001	4	EA	WASHER, #6 LOCK INTERNAL TOOTH
15	55.6704.0011	2	EA	STANDOFF, 5/16" HEX 6-32 .250" LG MF SS BLK

Front Ring Assembly (cont.)

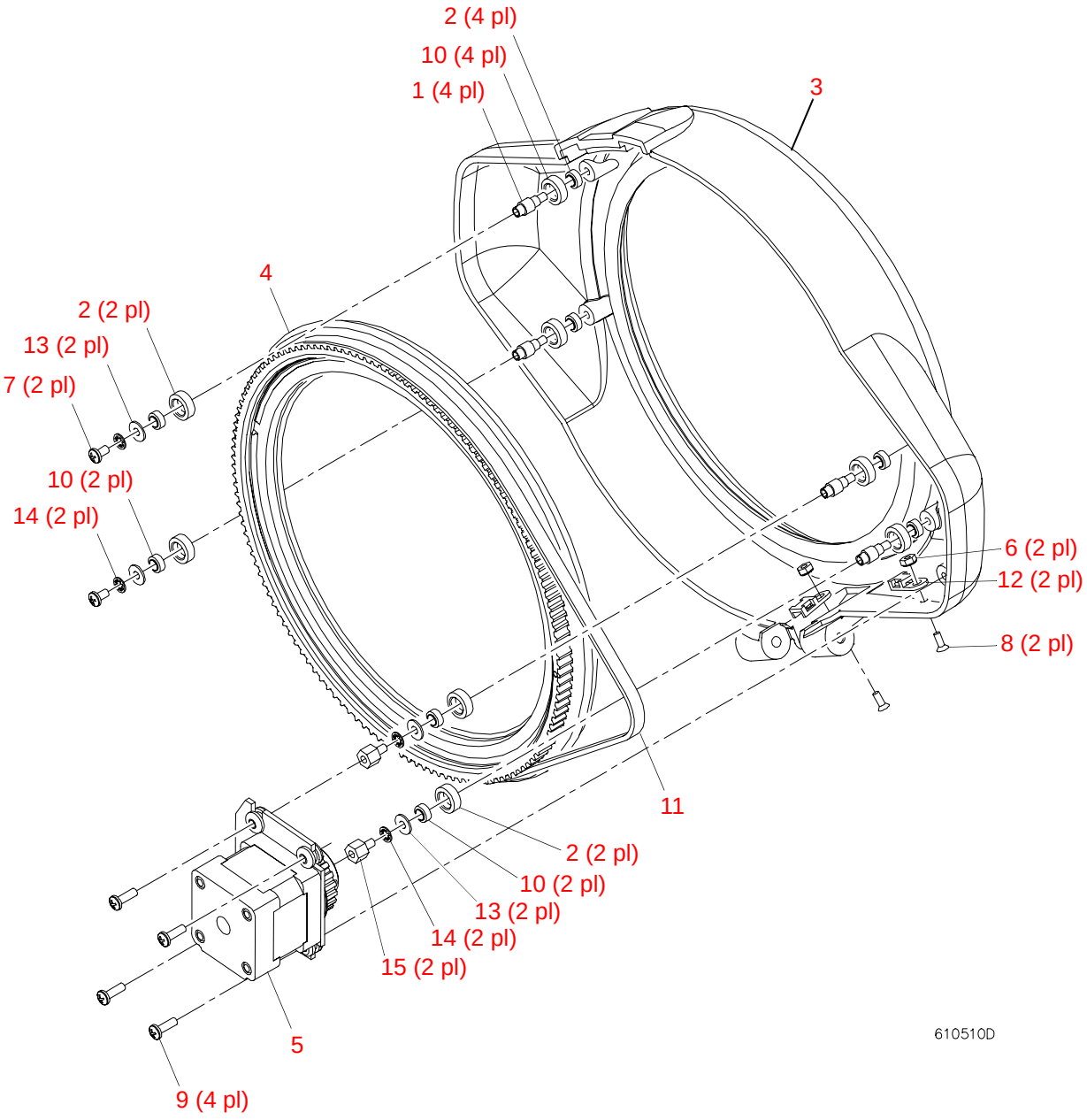


Figure 3-10: Front Ring Assembly

Drive Motor Assembly

22.9661.0512 Rev B

Refer to Figure 3-11.

No.	Item	Qty.	UM.	Description
1	10.9661.0529	1	EA	TIMING PULLEY, 1/5" PITCH
2	24.9661.0536	1	EA	PCB ASSY, ROTATING RING SENSOR
3	44.5031.0001	1	EA	MOTOR, STEPPER 42MM X 40MM, 10 OHM CUSTOM WINDINGS
4	53.6513.0002	4	EA	SCREW, 3MM X 5MM LG PFZ METRIC
5	55.6506.0018	4	EA	SPACER, 3/16" RND .3125" LG .141" ID AL
6	55.6541.0006	4	EA	GROMMET, 3/16" ID 13/32" GRV DIA RUBBER

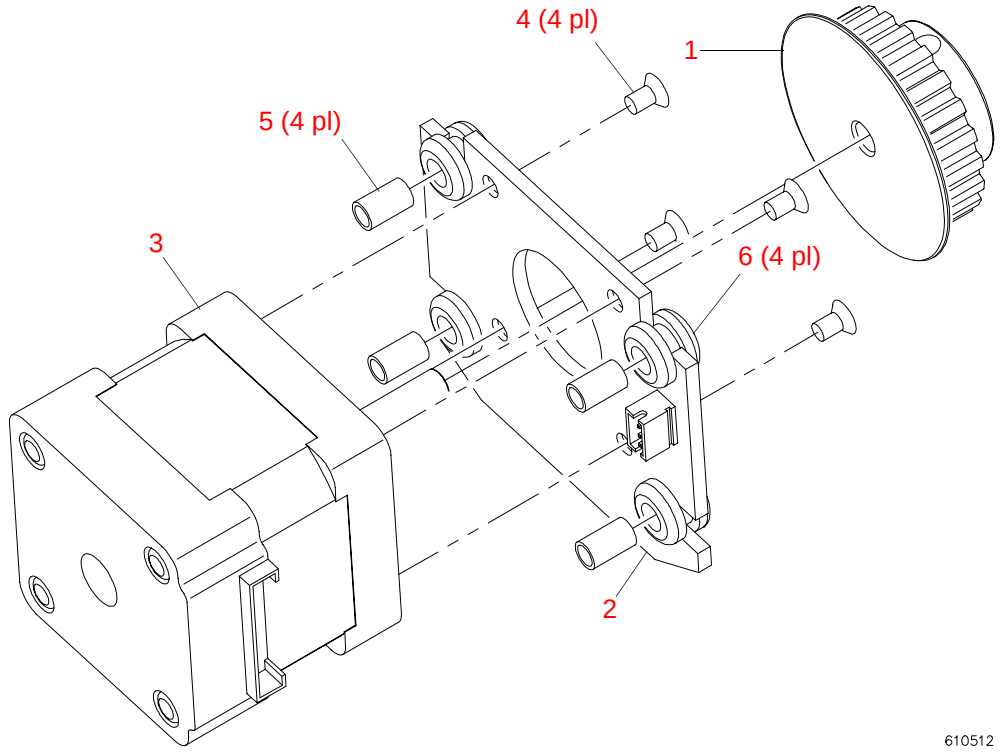


Figure 3-11: Drive Motor Assembly

Rotating Ring Sensor PCB Assembly

24.9661.0536 Rev 0

Refer to Figure 3-12.

No.	Item	Qty.	UM.	Description
1	11.9661.0536	1	EA	PCB, ROTATING RING SENSOR
2	52.6447.0003	1	EA	HEADER, SHROUDED 3 POSITION
3	86.7005.0001	1	EA	SENSOR, HALL-EFFECT A3141LLT SUR MT

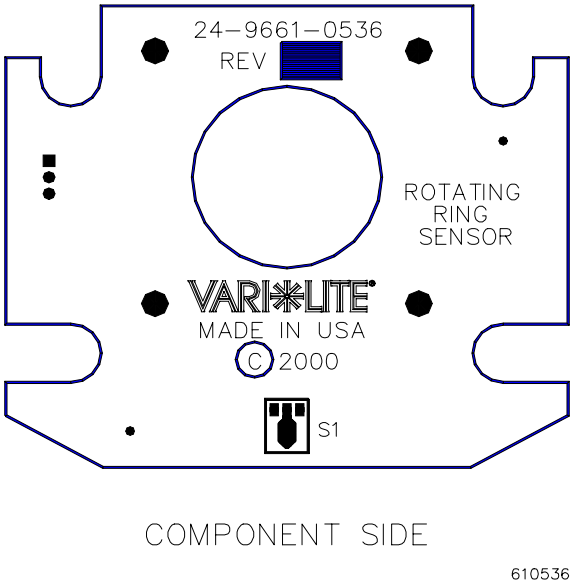


Figure 3-12: Rotating Ring Sensor PCB Assembly

Heatsink Assembly

22.9661.0100.01 (VL2411/VL2412) Rev H
22.9661.0100.02 (VL2413/VL2414) Rev H
22.9661.0100.03 (VL2415/VL2416) Rev H

Refer to Figure 3-13.

No.	Item	Qty.	UM.	Description
1	10.9634.0100	4	EA	CLIP, MOUNTING, REFLECTOR
2	10.9634.0103	3	EA	PAD, MOUNTING, REFLECTOR
3	10.9661.0107	1	EA	LAMP SPACER, INCANDESCENT **(VL2411/VL2412 ONLY)**
4	10.9661.0108	1	EA	LIGHT BAFFLE, AIR EXHAUST
5	10.9661.0119	1	EA	UV GLASS COUNTERWEIGHT **(VL2413/VL2414/VL2415/VL2416 ONLY)**
6	12.9661.0102	1	EA	HEATSINK, MODIFIED
7	12.9661.0104	1	EA	MACHINED, HEATSINK EXTENSION
8	12.9661.0106	1	EA	BACKCAP, MACHINED CASTING
-	25.9661.1522	1	EA	CABLE ASSY, HEAD TO BACK CAP GND **(not shown)**
-	25.9661.1527	1	EA	CABLE ASSY, BULB SOCKET TO IGNITOR **(VL2413/VL2414/VL2415/VL2416 ONLY) (not shown)**
-	25.9661.1528	1	EA	CABLE ASSY, BULB SOCKET TO RELAY **(not shown)** (INCANDESCENT) **(VL2411/VL2412 ONLY)**
9	41.9634.0068	1	EA	REFLECTOR, PAR 64, CUSTOM COATED
10	53.2200.0008	1	EA	NUT, 8-32 KEPS SS **(VL2413/VL2414/VL2415/VL2416 ONLY)**
11	53.6514.0004	3	EA	SCREW, 10-32 X 1 3/8" PPB
12	53.6521.0001	3	EA	SCREW, 8-32 X 1/2" PPB **(VL2411/VL2412 ONLY)**
		2	EA	SCREW, 8-32 X 1/2" PPB **(VL2413/VL2414/VL2415/VL2416 ONLY)**
13	53.6544.0002	2	EA	SCREW, 8-32 X 3/4" PPZ **(VL2415/VL2416 ONLY)**
14	53.6546.0003	2	EA	SCREW, 8-32 X 7/16" PPZ **(VL2413/VL2414 ONLY)**
15	53.6551.0001	2	EA	SCREW, 4-40 X 3/8" PPB
16	53.6576.0001	1	EA	SCREW, 8-32 X 1/2" PPZ
17	53.6607.0001	4	EA	SCREW, 6-32 X 1/4" PPB
18	53.6622.0001	2	EA	SCREW, 8-32 X 1 1/4" PPZ **(VL2411/VL2412 ONLY)**
		1	EA	SCREW, 8-32 X 1 1/4" PPZ **(VL2413/VL2414/VL2415/VL2416 ONLY)**
19	55.2203.0002	2	EA	SCREW, 4-40 X 1/4" PPB
20	54.1226.0001	1	EA	LATCH ASSY, VL5
21	55.6538.0001	4	EA	WASHER, #6 LOCK INTERNAL TOOTH
22	55.6568.0038	3	EA	SPRING, CPRSN .300" OD .875" LG .038" WIRE DIA SS
23	55.6635.0010	3	EA	WASHER, #10 SPERICAL LEDLOY BLK OXD
24	55.6504.0002	1	EA	WASHER, #8 LOCK EXT TOOTH

No.	Item	Qty.	UM.	Description
25	25.9661.0118	1	EA	LAMP HOLDER-2400 **(VL2411/VL2412 ONLY)**
	71.2528.0003	1	EA	SOCKET, LAMP -VL5ARC **(VL2413/ VL2414 ONLY)**
	71.2545.0001	1	EA	SOCKET, LAMP, POLARIZED **(VL2415/VL2416 ONLY)**

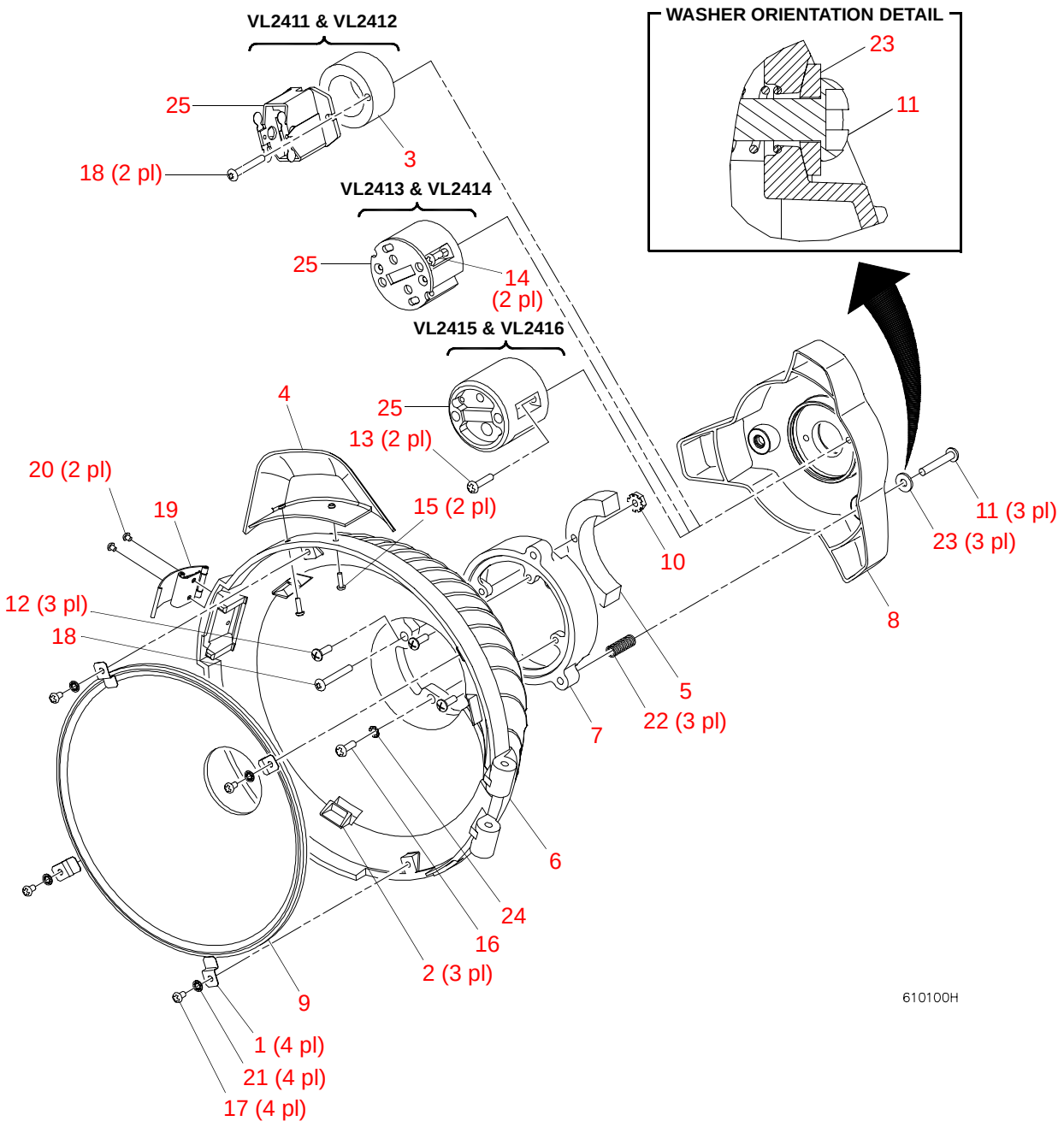


Figure 3-13: Heatsink Assembly

Blue/Magenta Bulkhead Assembly

22.9661.0326 Rev B

Refer to Figure 3-14, Figure 3-15 and Figure 3-16.

No.	Item	Qty.	UM.	Description
1	10.9634.0034	32	EA	SPRING, DRIVE ARM, FILTER
2	10.9634.0035	32	EA	LINK, DRIVE ARM
3	10.9634.0105	2	EA	LINK, SWIVEL
4	10.9634.0166	32	EA	CARRIER, FILTER, METAL INJ. MOLDED
5	10.9661.0315	4	EA	SUPPORT, BULKHEAD
6	10.9661.0325	4	EA	LIGHT BAFFLE FOAM, COLOR BULKHEAD
7	10.9661.0335	4	EA	RETAINER, BULKHEAD FOAM
8	22.9634.0119	1	EA	ASSY, VL5 CENTER HUB
9	22.9634.0143	2	EA	ASSY, VL5 DRIVE RING
10	22.9661.0308	1	EA	ASSY, BLU/MAG MOTOR
11	22.9661.0320	1	EA	ASSY, BULKHEAD
-	22.9634.0148	16	EA	ASSY, CARRIER BUSHING
-	22.9661.0319	1	EA	FAB SUBASSY, BULKHEAD
-	53.6569.0009	32	EA	RIVET, 3/32" OD FLAT HD SOLID ALUM (AN442-83-4
12	22.9661.0322	16	EA	ASSY, FILTER COMPLEX COLOR MAGENTA
13	22.9661.0323	16	EA	ASSY, FILTER -BLUE
14	53.6559.0002	4	EA	SCREW, 4-40 X 1/4" PFB
15	55.2203.0001	12	EA	SCREW, 4-40 X 1/4" PPZ
16	55.6537.0001	12	EA	WASHER, #4 LOCK INTERNAL TOOTH
17	55.6612.0008	8	EA	PIN, 1/8OD X 3/8L TYPE-H AL606-T6 DRIV-LOK
18	55.6669.0009	4	EA	STANDOFF, 1/4" HEX 4-40 .625" LG SS

Blue/Magenta Bulkhead Assembly (cont.)

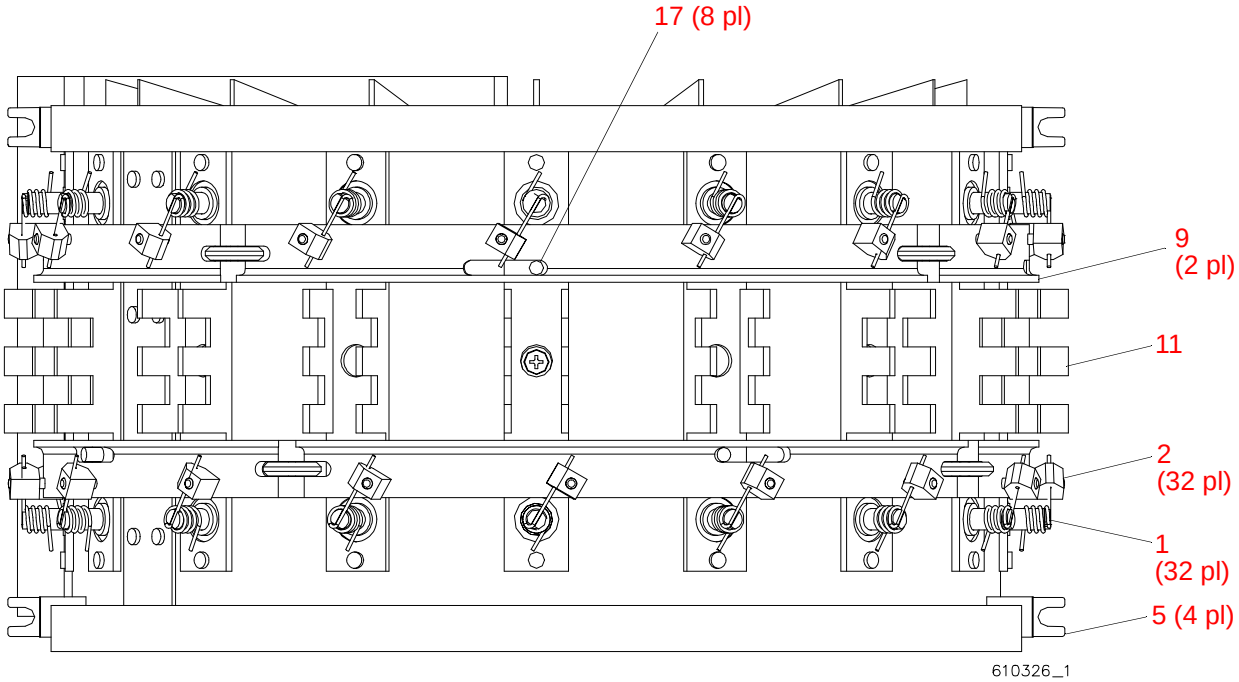


Figure 3-14: Blue/Magenta Bulkhead Assembly (side view)

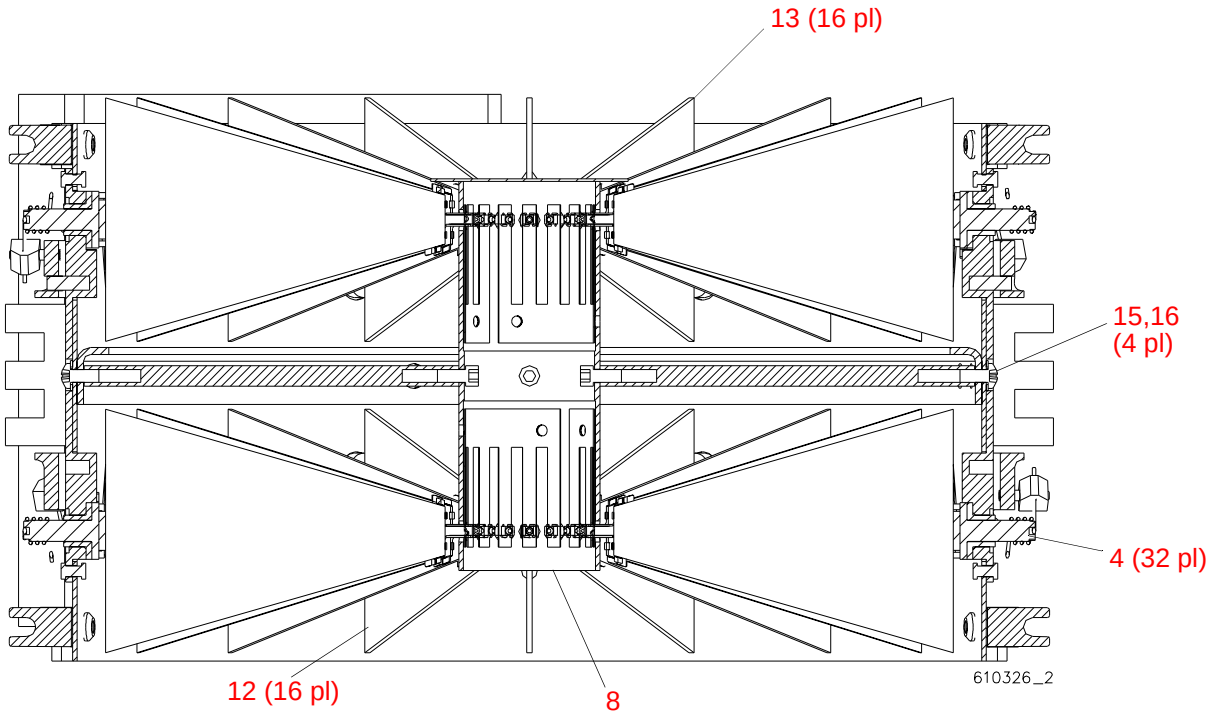


Figure 3-15: Blue/Magenta Bulkhead Assembly (cut-away view)

Blue/Magenta Bulkhead Assembly (cont.)

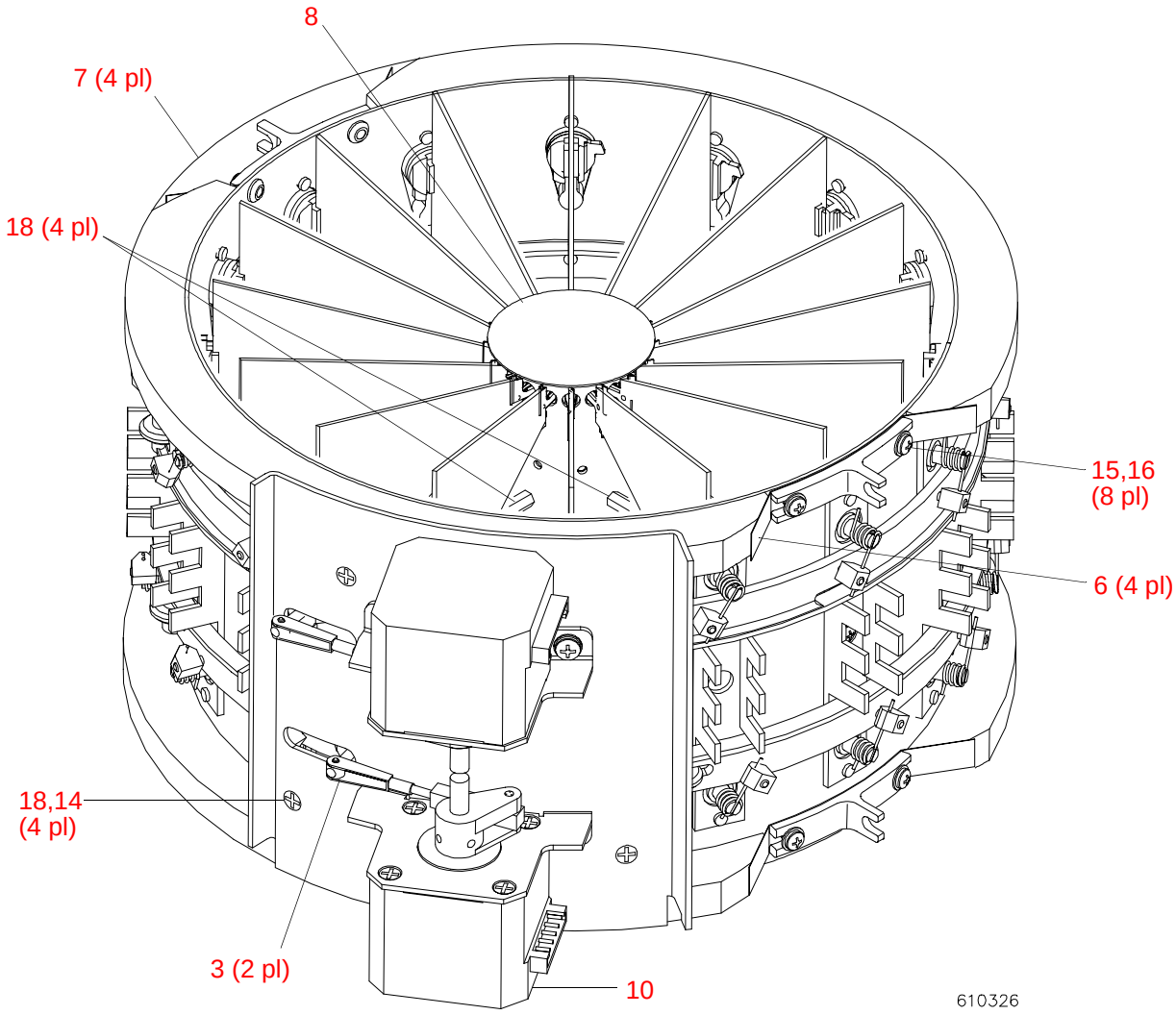


Figure 3-16: Blue/Magenta Bulkhead Assembly (three-quarter view)

Center Hub Assembly

22.9634.0119 Rev 0

Refer to Figure 3-17.

No.	Item	Qty.	UM.	Description
1	10.9634.0028	1	EA	HUB, CENTER, VL5 BULKHEAD
2	10.9634.0029	2	EA	SPRING, FINGER, FILTER SUPPORT
3	10.9634.0133	1	EA	PLUG, HUB
4	53.5704.0250	4	EA	SCREW, 4-40 X 1/4" SCSS
5	53.6534.0003	8	EA	RIVET, POP, STEEL 3/32OD X 3/32GRIP
6	55.6669.0008	4	EA	STANDOFF, 5/32" HEX 4-40 X 3-5/16" SS BLACK

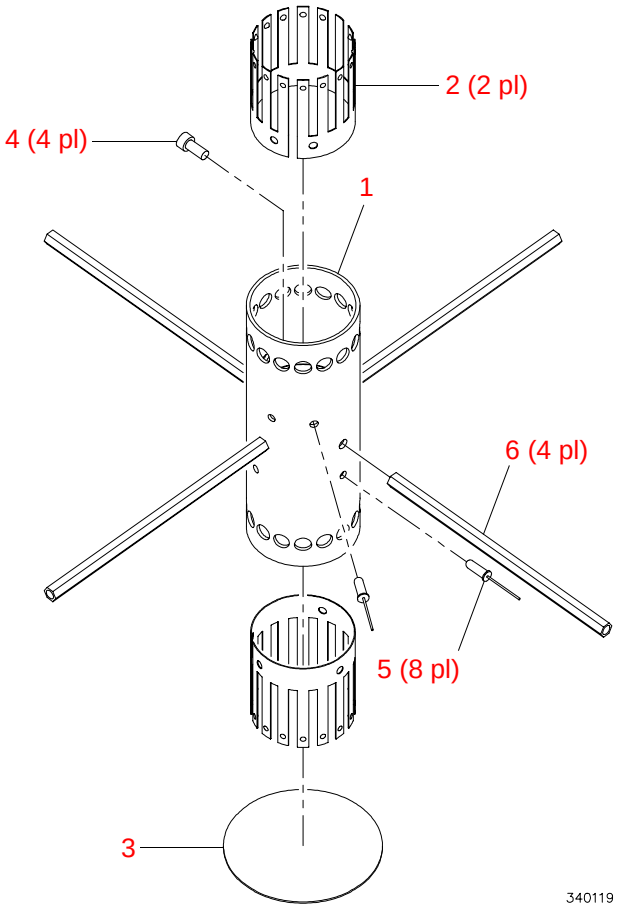


Figure 3-17: Center Hub Assembly

Drive Ring Assembly

22.9634.0143 Rev A

Refer to Figure 3-18.

No.	Item	Qty.	UM.	Description
1	10.9634.0027	1	EA	RING, DRIVE
2	10.9634.0044	4	EA	ROLLER, VL5 DRIVE RING, SM
3	53.5554.0875	1	EA	SCREW, SET, 4-40 X 7/8" SS FLAT POINT
4	55.6612.0004	4	EA	PIN, 1/16OD X 1/2L, TYPE C, 303S/S

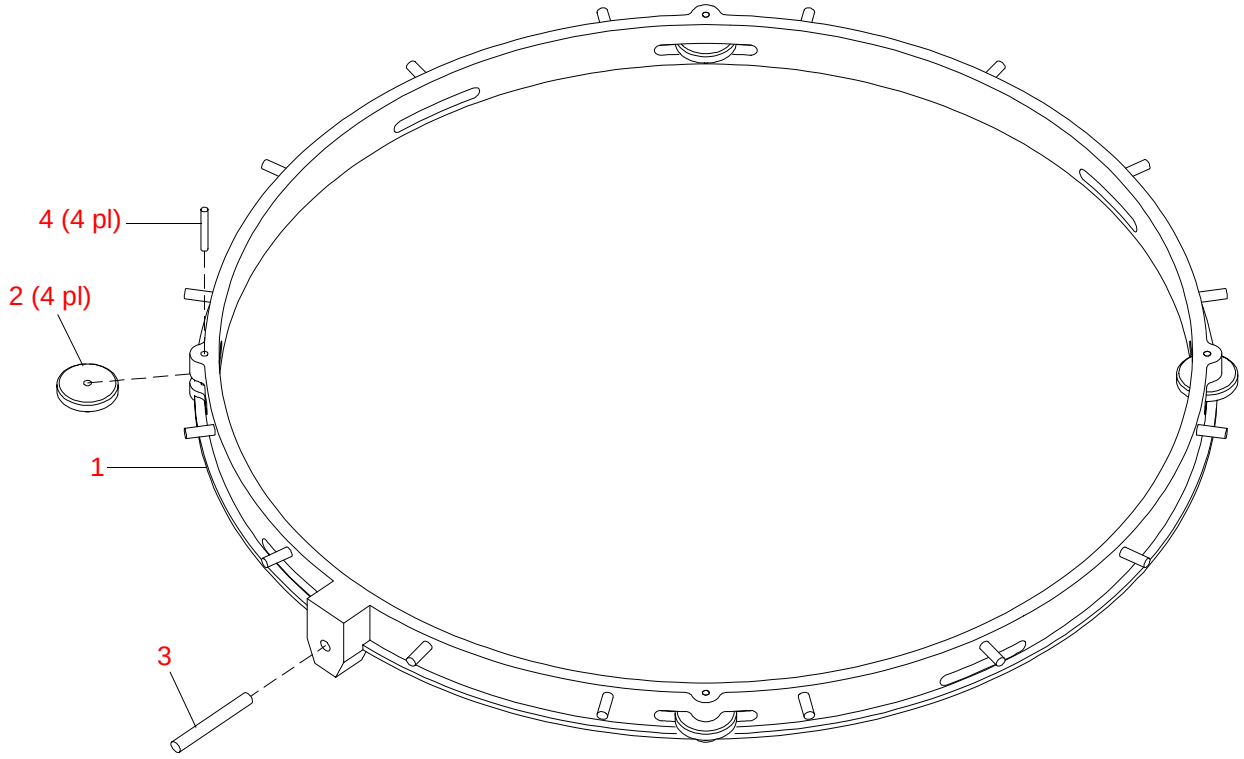


Figure 3-18: Drive Ring Assembly

Blue/Magenta Motor Assembly

22.9661.0308 Rev C

Refer to Figure 3-19.

No.	Item	Qty.	UM.	Description
1	10.9661.0304	1	EA	HEAT SHIELD, STEPPER MOTOR
2	10.9661.0306	2	EA	BRACKET, STEPPER MOTOR
3	22.9661.0347	2	EA	ASSY, CRANK COLOR STROBE, ADJUSTABLE
4	44.5029.0001	2	EA	MOTOR, STEPPER 42MM X 34MM -AR6
5	53.6513.0008	8	EA	SCREW, M3 3MM X 5MM LG PFB METRIC .5 PITCH
6	53.6608.0003	4	EA	SCREW, 6-32 X 3/16" LG PPZ
7	55.6538.0001	4	EA	WASHER, #6 LOCK INTERNAL TOOTH

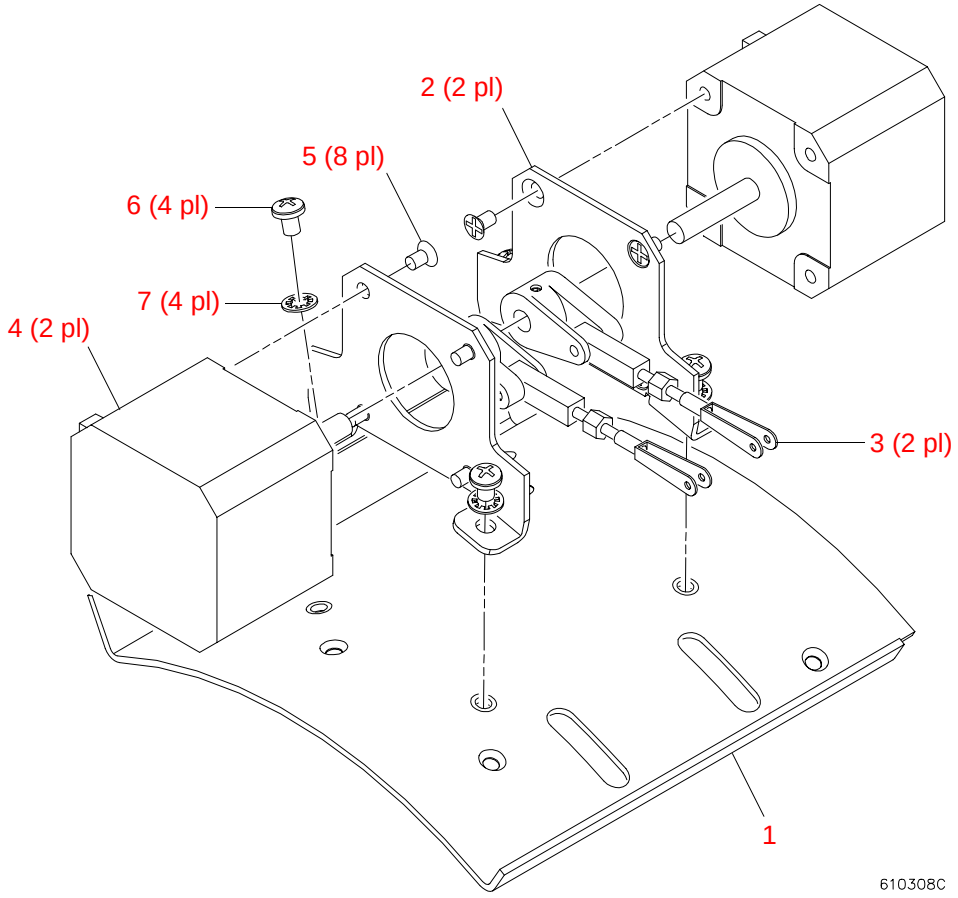


Figure 3-19: Blue/Magenta Motor Assembly

Adjustable Crank Color Strobe Assembly (New)

22.9661.0347 Rev 0

Refer to Figure 3-20.

No.	Item	Qty.	UM.	Description
1	10.9661.0342	1	EA	CRANK, DRIVE COLOR/STROBE
2	10.9661.0345	1	EA	LINK, DRIVE COLOR/STROBE, LH THREAD
3	10.9661.0346	1	EA	COLOR CALIBRATION STUD
4	53.6578.0001	2	EA	SCREW, 4-40 X 1/8" SET
5	54.1217.0004	1	EA	LINK, VL5 ACTUATOR/DRIVE RING (5441-P)
6	55.6612.0016	1	EA	PIN, DRIVE GROOVE 3/32" OD X 7/16" L TYP C LOW CAR STL ZINC

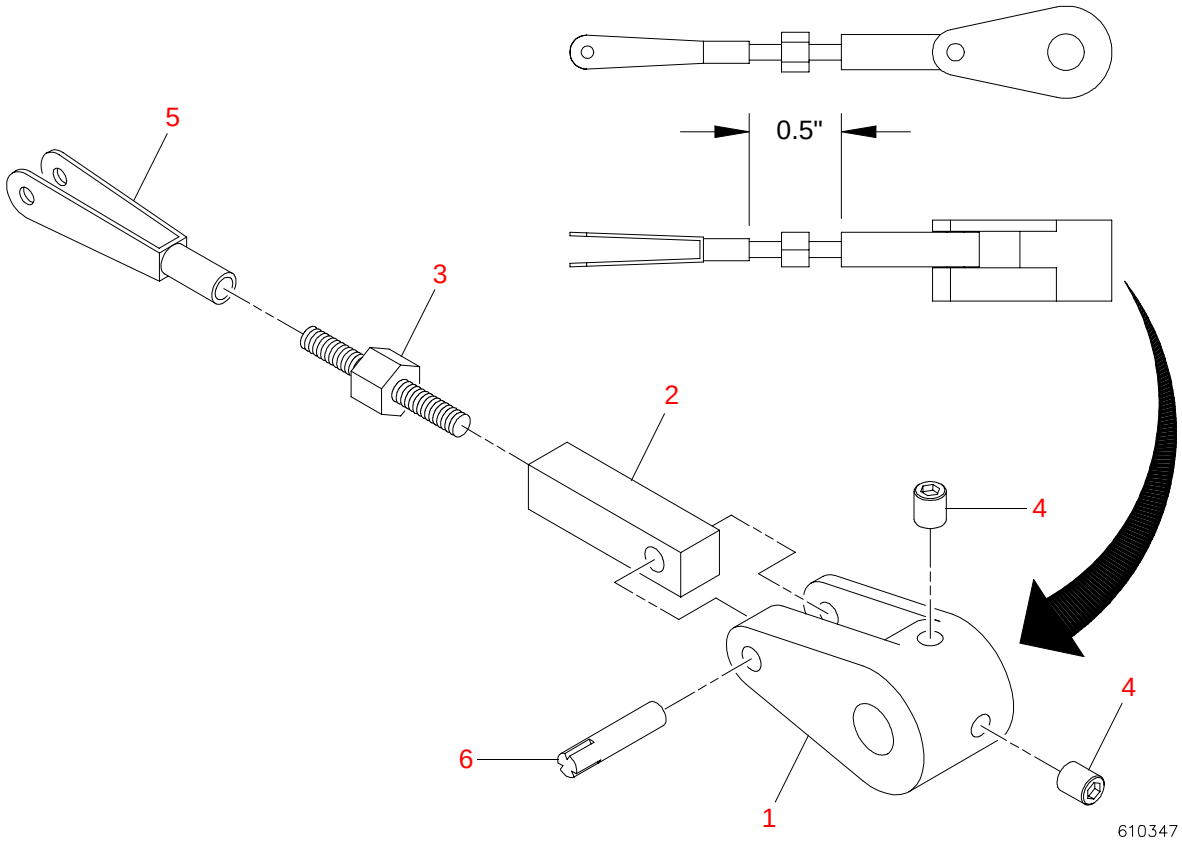


Figure 3-20: Adjustable Crank Color Strobe Assembly

Crank Color Strobe Assembly (Old Style)

22.9661.0340 Rev 0

Refer to Figure 3-21

No.	Item	Qty.	UM.	Description
1	10.9661.0341	1	EA	LINK, DRIVE COLOR/STROBE
2	10.9661.0342	1	EA	CRANK, DRIVE COLOR/STROBE
3	53.6578.0001	2	EA	SCREW, 4-40 X 1/8" SET
4	53.6605.0004	1	EA	STUD, 2-56 X 1.0" LG FULL THREAD STAINLESS STEEL
5	54.1217.0004	1	EA	LINK, VL5 ACTUATOR/DRIVE RING (5441-P)
6	55.6612.0016	1	EA	PIN, DRIVE GROOVE 3/32" OD X 7/16" L TYP C LOW CAR STL ZINC

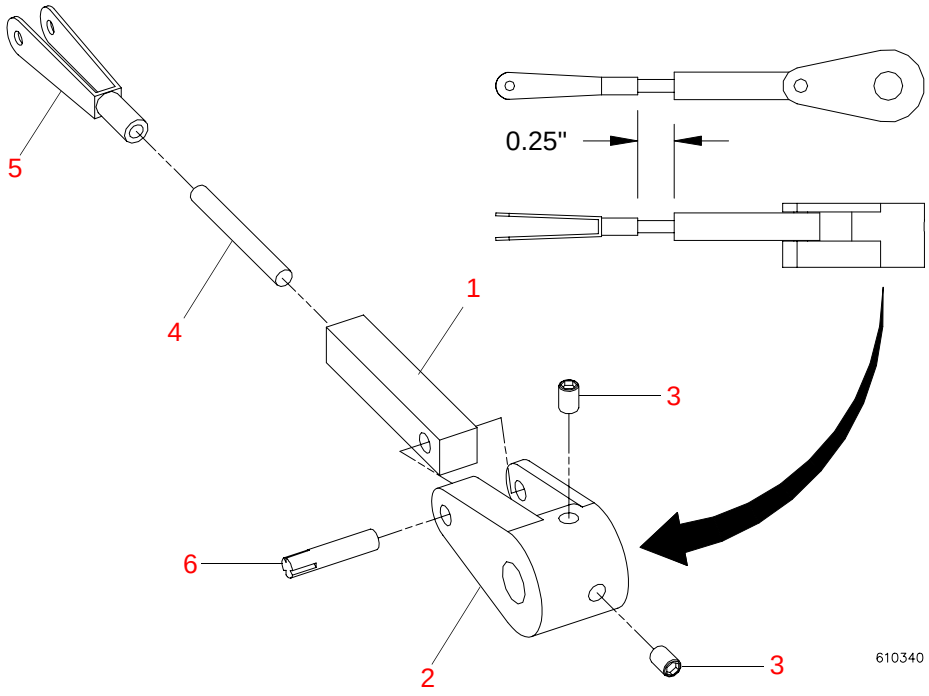


Figure 3-21: Crank Color Strobe Assembly (Old Style)

Filter Assemblies

Refer to Figure 3-22.

Filter Complex Color Magenta Assembly

22.9661.0322 Rev B

No.	Item	Qty.	UM.	Description
1	10.9634.0067	1	EA	PAD, FILTER, EXTRUSION, SILICONE, WHITE
2	10.9634.0156	1	EA	CARRIER, CENTER FILTER, VL5 BLU/AMB/DIFF
3	41.9661.0321	1	EA	FILTER, COLOR COMPLEX 32DEGREE

Blue Filter Assembly

22.9661.0323 Rev 0

No.	Item	Qty.	UM.	Description
1	10.9634.0067	1	EA	PAD, FILTER, EXTRUSION, SILICONE, WHITE
2	10.9634.0156	1	EA	CARRIER, CENTER FILTER, VL5 BLU/AMB/DIFF
3	41.9661.0327	1	EA	FILTER, COLOR SWP (BLUE)

Amber Filter Assembly

22.9661.0324 Rev 0

No.	Item	Qty.	UM.	Description
1	10.9634.0067	1	EA	PAD, FILTER, EXTRUSION, SILICONE, WHITE
2	10.9634.0156	1	EA	CARRIER, CENTER FILTER, VL5 BLU/AMB/DIFF
3	41.9661.0328	1	EA	FILTER, COLOR LWP (AMBER)

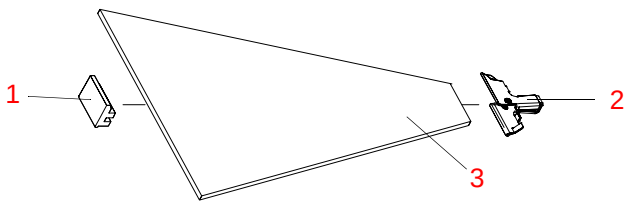


Figure 3-22: Filter Assemblies

Amber/Dimmer Bulkhead Assembly

22.9661.0327 Rev E

Refer to Figures 3-23, 3-24 and 3-25.

No.	Item	Qty.	UM.	Description
1	10.9634.0034	32	EA	SPRING, DRIVE ARM, FILTER
2	10.9634.0035	32	EA	LINK, DRIVE ARM
3	10.9634.0105	2	EA	LINK, SWIVEL
4	10.9634.0166	16	EA	CARRIER, FILTER, METAL INJ. MOLDED
5	10.9661.0303	16	EA	DIMMER BLADE
6	10.9661.0307	16	EA	DIMMER CARRIER
7	10.9661.0312	16	EA	DIMMER BEARING
8	10.9661.0313	1	EA	OUTER LIGHT BAFFLE, DIMMER
9	10.9661.0315	4	EA	SUPPORT, BULKHEAD
10	10.9661.0325	4	EA	LIGHT BAFFLE FOAM, COLOR BULKHEAD
11	10.9661.0335	4	EA	RETAINER, BULKHEAD FOAM
12	22.9634.0143	1	EA	ASSY, VL5 DRIVE RING
13	22.9661.0309	1	EA	ASSY, AMB/DIM MOTOR
14	22.9661.0317	1	EA	ASSY, CENTER HUB
15	22.9661.0320	1	EA	ASSY, BULKHEAD
-	22.9634.0148	16	EA	ASSY, CARRIER BUSHING
-	22.9661.0319	1	EA	FAB SUBASSY, BULKHEAD
-	53.6569.0009	32	EA	RIVET, 3/32" OD FLAT HD SOLID ALUM (AN442-83-4
16	22.9661.0324	16	EA	ASSY, FILTER -AMBER
17	22.9661.0343	1	EA	ASSY, STROBE DRIVE RING
18	53.6534.0003	2	EA	RIVET, 3/32" OD POP 3/32GRIP STEEL
19	53.6556.0004	16	EA	SCREW, 4-40 X 1/8 " PPB
20	53.6559.0002	4	EA	SCREW, 4-40 X 1/4" PFB
21	55.2203.0001	12	EA	SCREW, 4-40 X 1/4 " PPZ
22	55.6537.0001	12	EA	WASHER, #4 LOCK INTERNAL TOOTH
23	55.6612.0008	8	EA	PIN, 1/8OD X 3/8L TYPE-H AL606-T6 DRIV-LOK
24	55.6669.0009	4	EA	STANDOFF, 1/4" HEX 4-40 .625" LG SS

Amber/Dimmer Bulkhead Assembly (cont.)

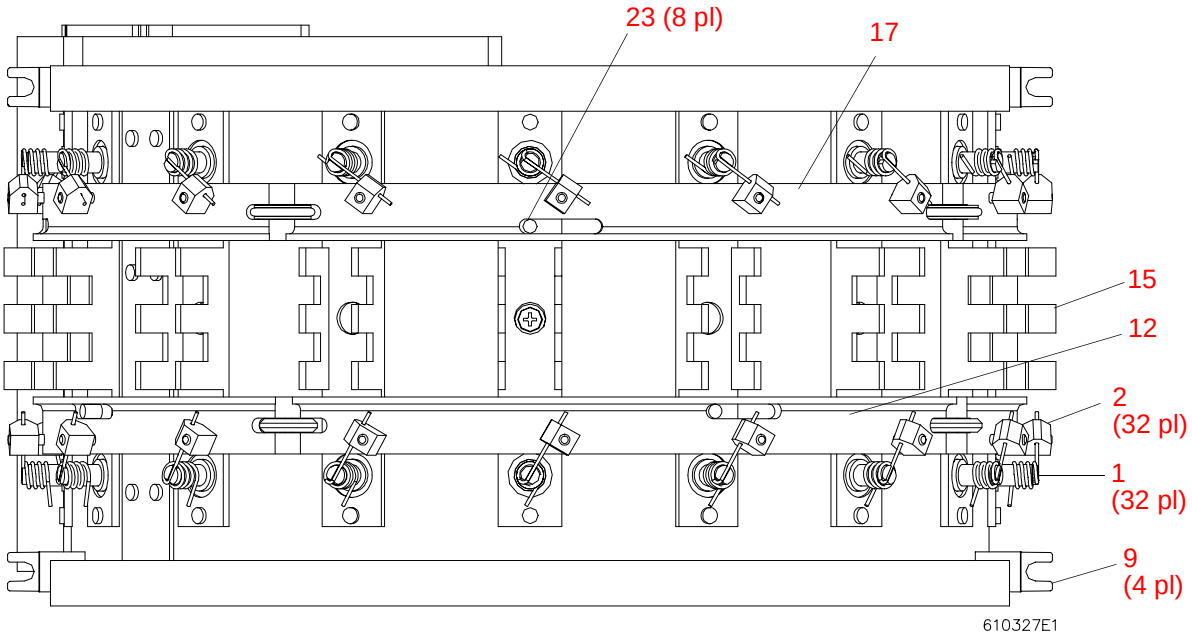


Figure 3-23: Amber/Dimmer Bulkhead Assembly (side view)

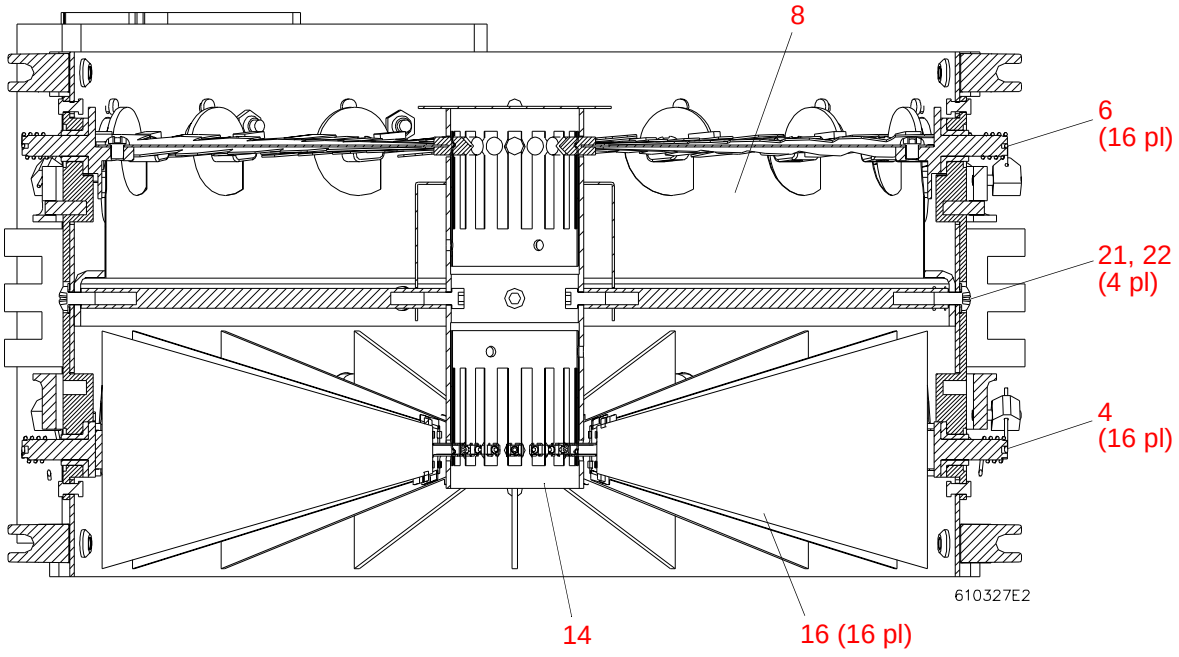


Figure 3-24: Amber/Dimmer Bulkhead Assembly (cutaway view)

Amber/Dimmer Bulkhead Assembly (cont.)

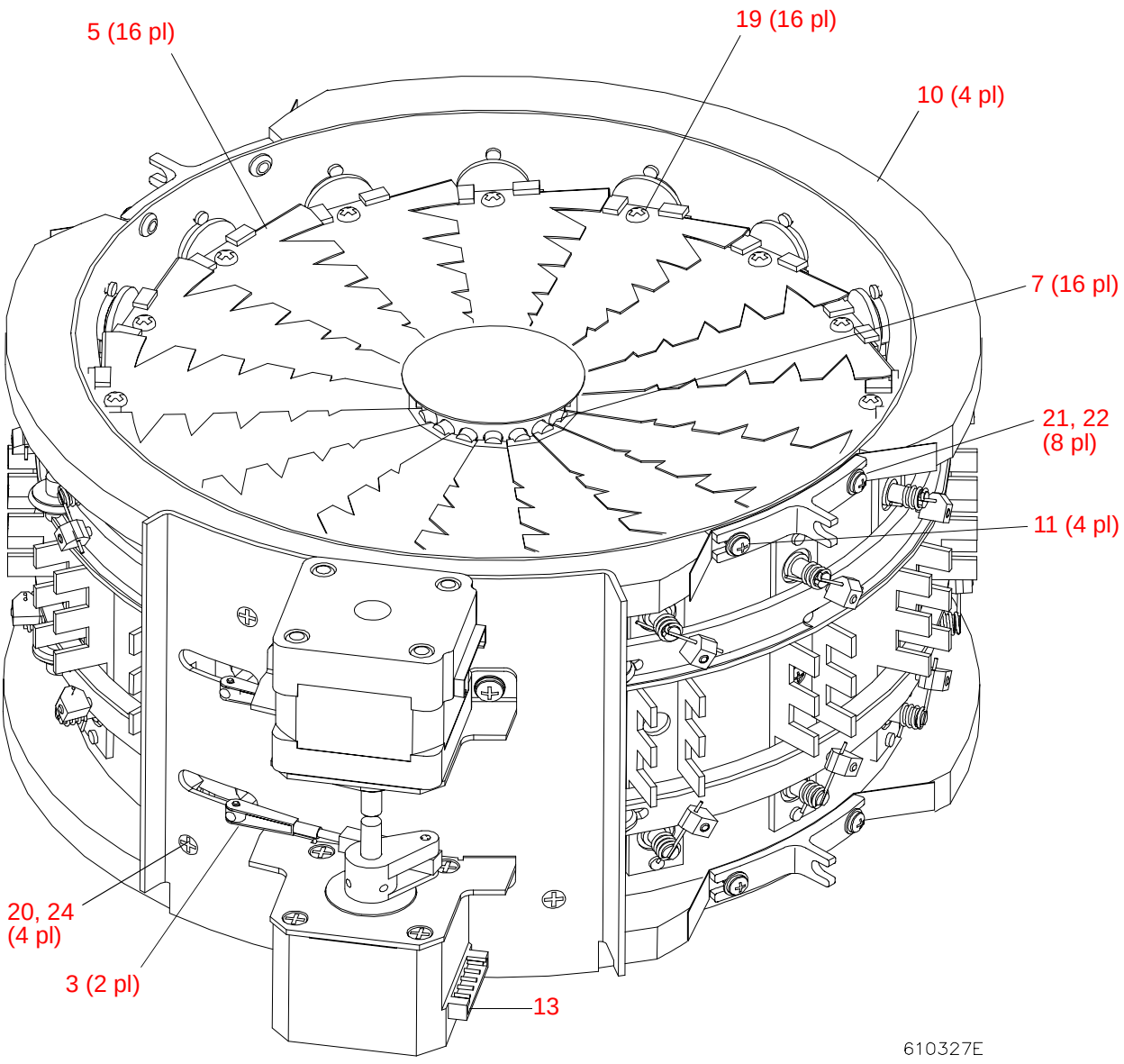


Figure 3-25: Amber/Dimmer Bulkhead Assembly (three-quarters view)

Amber/Dimmer Motor Assembly

22.9661.0309 Rev C

Refer to Figure 3-26.

No.	Item	Qty.	UM.	Description
1	10.9661.0304	1	EA	HEAT SHIELD, STEPPER MOTOR
2	10.9661.0306	2	EA	BRACKET, STEPPER MOTOR
3	22.9661.0347	2	EA	ASSY, CRANK COLOR STROBE
4	44.5029.0001	1	EA	MOTOR, STEPPER 42MM X 34MM -AR6
5	44.5031.0001	1	EA	MOTOR, STEPPER 42MM X 40MM, 10 OHM CUSTOM WINDINGS
6	53.6513.0008	8	EA	SCREW, M3 3MM X 5MM LG PFB METRIC .5 PITCH
7	53.6608.0003	4	EA	SCREW, 6-32 X 3/16" LG PPZ
8	55.6538.0001	4	EA	WASHER, #6 LOCK INTERNAL TOOTH

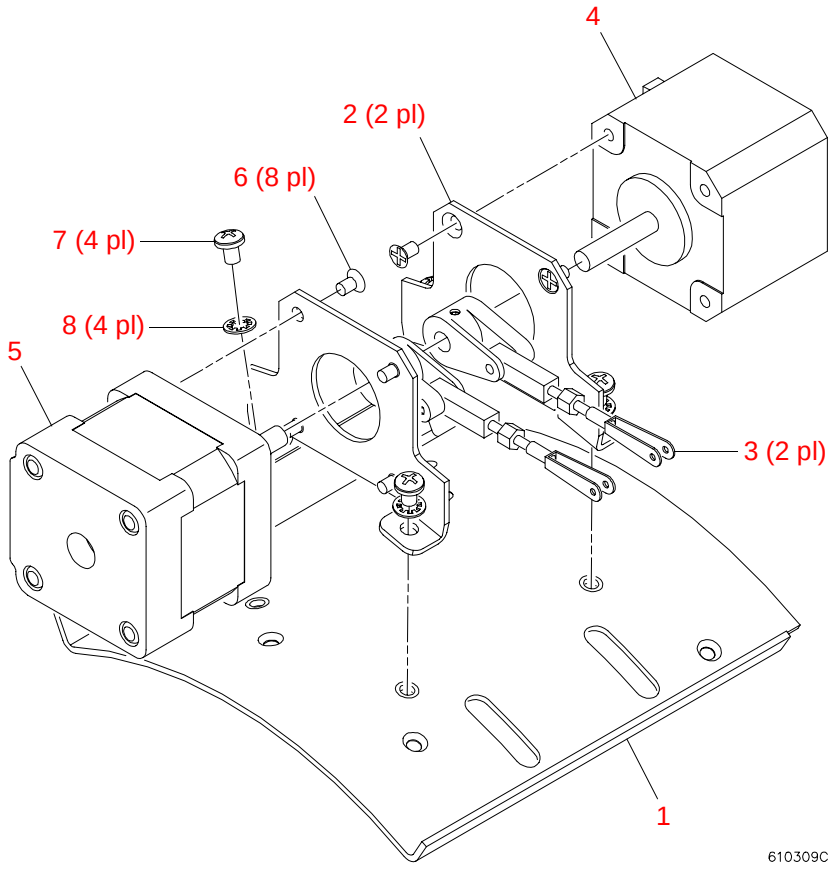


Figure 3-26: Amber/Dimmer Motor Assembly

Center Hub Assembly

22.9661.0317 Rev 0

Refer to Figure 3-27.

No.	Item	Qty.	UM.	Description
1	10.9634.0028	1	EA	HUB, CENTER, VL5 BULKHEAD
2	10.9634.0029	2	EA	SPRING, FINGER, FILTER SUPPORT
3	10.9634.0133	1	EA	PLUG, HUB
4	10.9647.0121	1	EA	VL5ARC INNER LIGHT BAFFLE
5	53.5704.0250	4	EA	SCREW, 4-40 X 1/4" SCSS
6	53.6534.0003	8	EA	RIVET, 3/32" OD POP 3/32GRIP STEEL
7	55.6669.0008	4	EA	STANDOFF, 5/32" HEX 4-40 3.312" LG SS BLK

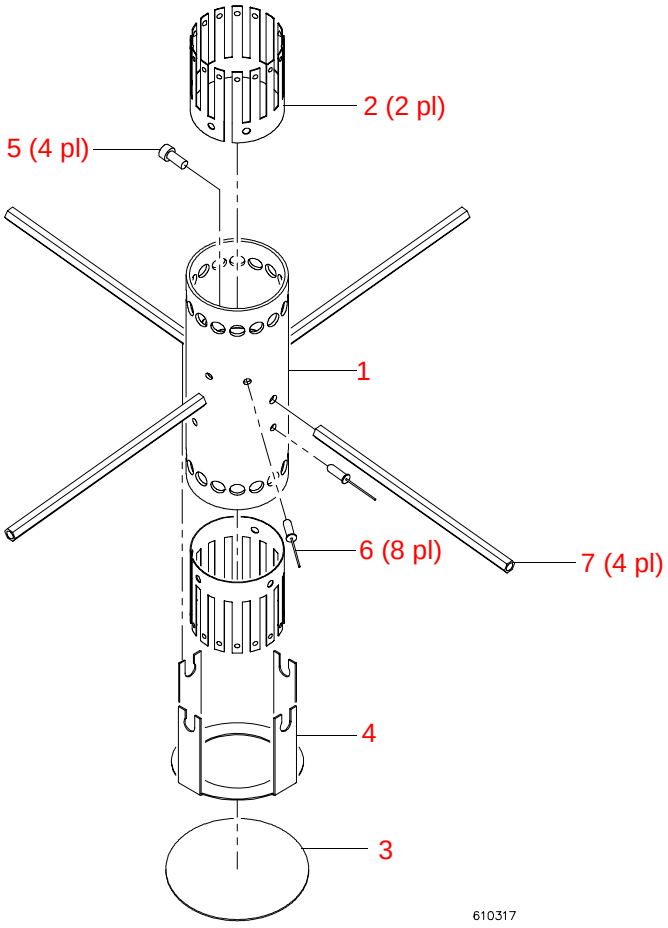


Figure 3-27: Center Hub Assembly

Strobe Drive Ring Assembly

22.9661.0343 Rev A

Refer to Figure 3-28.

No.	Item	Qty.	UM.	Description
1	10.9634.0027	1	EA	RING, DRIVE
2	10.9661.0344	4	EA	DIMMER WHEEL
3	53.5554.0875	1	EA	SCREW, 4-40 X 7/8 " SET SS FLAT POINT
4	55.6612.0004	4	EA	PIN, 1/16OD X 1/2L TYPE C 303 SS
5	55.7005.0025	4	EA	O-RING, 13MM OD 10MM ID 1.5MM THK VITON

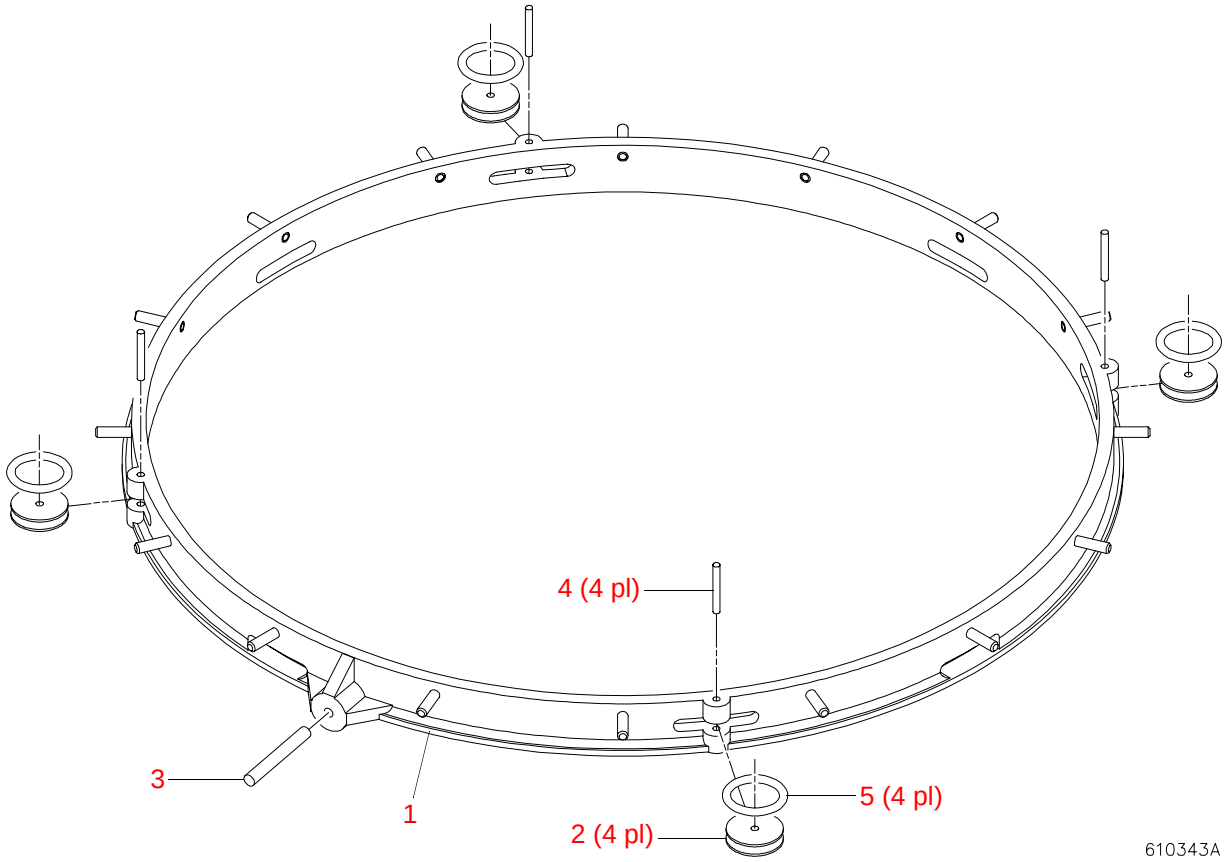


Figure 3-28: Strobe Drive Ring Assembly

Bulb Disconnect Assembly

23.9661.0220 Rev B

Refer to Figure 3-29.

No.	Item	Qty.	UM.	Description
1	10.9661.0221	1	EA	INSULATOR, CONTACT LAMP DISCONNECT
2	10.9661.0222	1	EA	CONTACT, LAMP DISCONNECT
3	10.9661.0223	2	EA	INSULATOR, CONTACT, SECONDARY
4	52.6524.0003	1	EA	CONN, HOUSING 3POS SGL ROW SL-F
5	52.8230.0002	1	EA	RECEPT.1/4" FASTON 22-18AWG (LOOSE)
	52.8346.0001	2	EA	CONTACT, 24-30AWG FEMALE CRIMP **(not shown)**
6	53.6534.0008	2	EA	RIVET, 3/32" OD POP .25-.375" GRP ALUM ALUM MANDREL
7	55.3301.0003	2	EA	WASHER, FLAT #2 AN, ID.099" X OD.250"
8	73.1624.0005	36	IN	WIRE, 24AWG 300V 200C TEF GRN TYPE EE MIL-W-16878/5

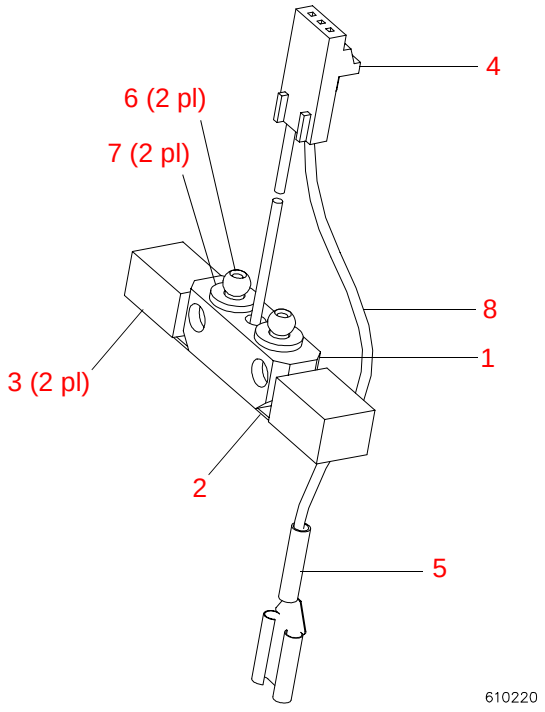


Figure 3-29: Bulb Disconnect Assembly

Light Baffle w/ Counter Weight Assembly

22.9661.0409.01 (VL2411/VL2413/VL2415 ONLY) Rev B

Refer to Figure 3-30.

No.	Item	Qty.	UM.	Description
1	10.9661.0315	4	EA	SUPPORT, BULKHEAD
2	10.9661.0448	1	EA	COUNTERWEIGHT, BEAM SPREADER MOTOR
3	22.9661.0424	1	EA	ASSY, BEAM SPREADER HEAT SHIELD
4	22.9661.0426	1	EA	ASSY, LENS REPLACEMENT BALLAST
-	10.9661.0413	1	EA	CAN, LENS REPLACEMENT BALLAST
-	10.9661.0425	1	EA	BALLAST, LENS REPLACEMENT
5	22.9661.0428	1	EA	ASSY, HEAT SHEILD/MOTOR MOUNT
-	10.9661.0427	1	EA	BEAM SPREADER HEAT SHIELD, MOTOR MOUNT
-	10.9661.0437	1	EA	HEAT SHIELD INSULATION, MOTOR MOUNT
6	22.9661.0450	1	EA	ASSY, LIGHT BAFFLE RING BULKHEAD
7	23.9661.0438	1	EA	FAN ASSY, COLOR MOTOR/LAMP
8	53.6559.0002	1	EA	SCREW, 4-40 X 1/4" PFB
9	53.6571.0003	2	EA	SCREW, 6-32 X 1 1/2" PPB
10	53.6600.0001	4	EA	SCREW, 4-40 X 5/16" PPB
11	55.2203.0001	1	EA	SCREW, 4-40 X 1/4" PPZ
12	55.2203.0002	20	EA	SCREW, 4-40 X 1/4" PPB
13	55.6537.0001	25	EA	WASHER, #4 LOCK INTERNAL TOOTH
14	55.6669.0009	1	EA	STANDOFF, 1/4" HEX 4-40 .625" LG SS

Light Baffle w/ Counter Weight Assembly (cont.)

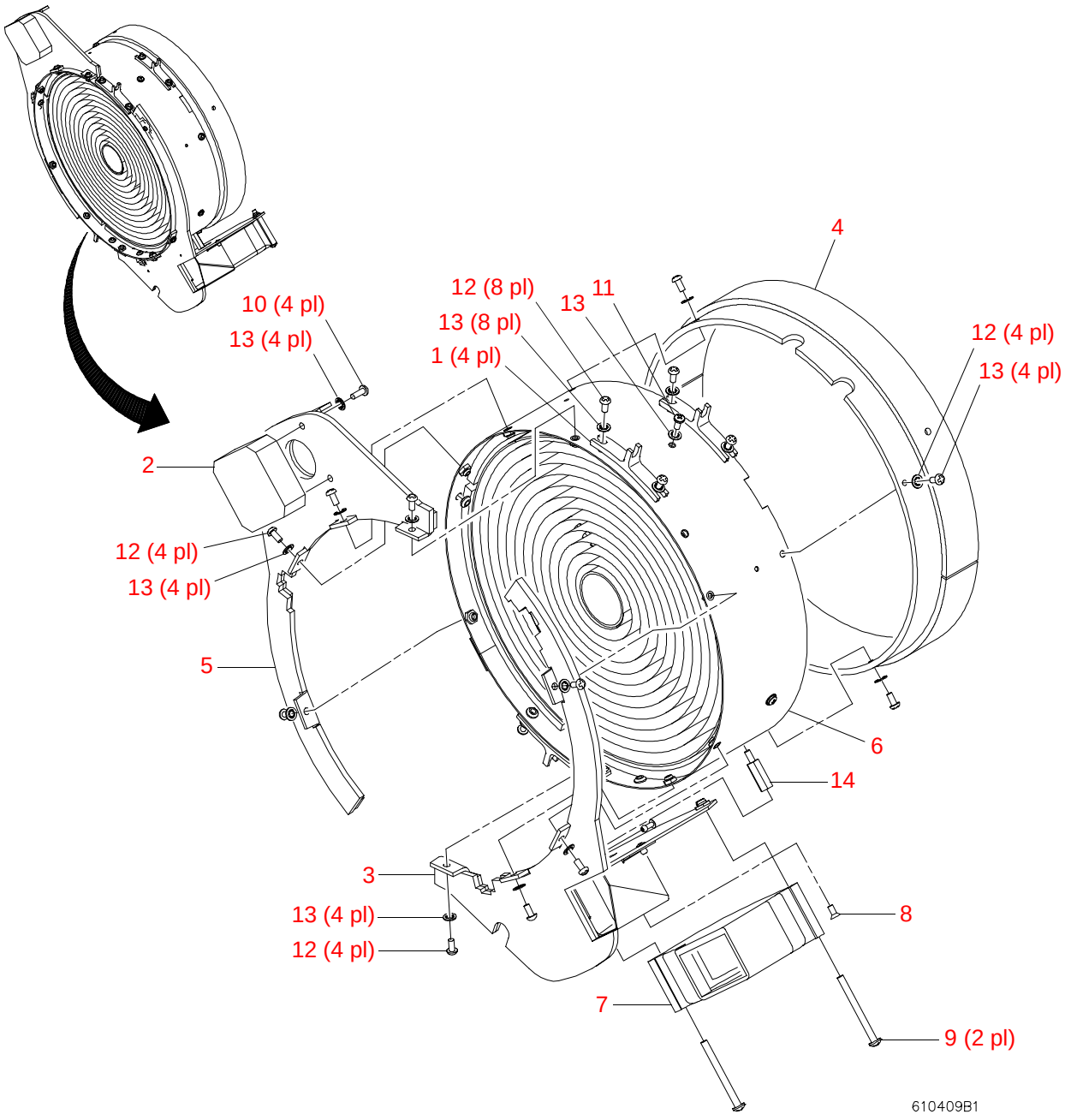


Figure 3-30: Light Baffle w/ Counter Weight Assembly

Beam Spreader

Baffle/Beam Spreader Assembly

22.9661.0409.02 (VL2412/VL2414/VL2416) Rev B

Refer to Figure 3-31.

No.	Item	Qty.	UM.	Description
1	10.9661.0315	4	EA	SUPPORT, BULKHEAD
2	10.9661.0436	3	EA	WHEEL, TEFLON
3	10.9661.0442	1	EA	STOP, CAM RING
4	10.9661.0460	1	EA	TIMING PULLEY, BEAM SPREADER
5	22.9661.0400	1	EA	ASSY, BEAM SPREADER
6	22.9661.0424	1	EA	ASSY, BEAM SPREADER HEAT SHIELD
7	22.9661.0428	1	EA	ASSY, HEAT SHEILD/MOTOR MOUNT
-	10.9661.0427	1	EA	BEAM SPREADER HEAT SHIELD, MOTOR MOUNT
-	10.9661.0437	1	EA	HEAT SHIELD INSULATION, MOTOR MOUNT
8	22.9661.0443	1	EA	ASSY, CAM RING
9	22.9661.0450	1	EA	ASSY, LIGHT BAFFLE RING BULKHEAD
10	22.9661.0482	1	EA	BELT TENSION ASSY
11	23.9661.0438	1	EA	FAN ASSY, COLOR MOTOR/LAMP
12	44.5029.0001	1	EA	MOTOR, STEPPER 42MM X 34MM -AR6
13	53.6513.0024	4	EA	SCREW, M3 X 8MM LG PPZ METRIC
14	53.6520.0001	5	EA	SCREW, 4-40 X 3/8" PPZ
15	53.6559.0002	1	EA	SCREW, 4-40 X 1/4" PFB
16	53.6571.0003	2	EA	SCREW, 6-32 X 1 1/2" PPB
17	55.2203.0001	3	EA	SCREW, 4-40 X 1/4" PPZ
18	55.2203.0002	20	EA	SCREW, 4-40 X 1/4" PPB
19	55.6537.0001	25	EA	WASHER, #4 LOCK INTERNAL TOOTH
20	55.6669.0009	1	EA	STANDOFF, 1/4" HEX 4-40 .625" LG SS
21	55.6697.0017	3	EA	STANDOFF, 3/16" RND 4-40 .312" LG MF SS

Baffle/Beam Spreader Assembly (cont.)

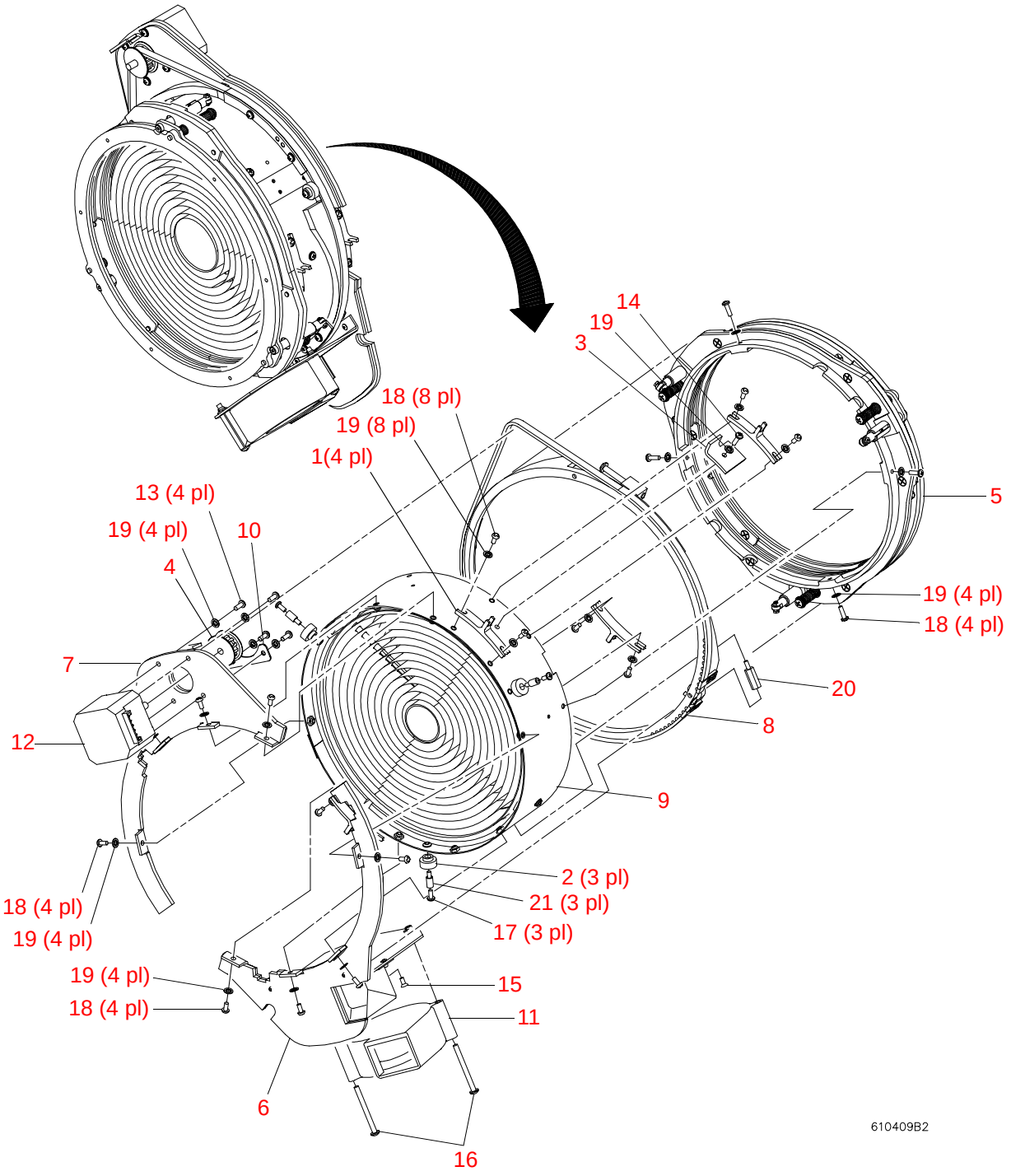


Figure 3-31: Baffle/Beam Spreader Assembly VL2412/VL2414/VL2416

Beam Spreader Assembly

22.9661.0400 (VL2412/VL2414/VL2416 ONLY) Rev C

Refer to Figure 3-32.

No.	Item	Qty.	UM.	Description
1	22.9661.0407	1	EA	ASSY, CONCAVE LENS
2	22.9661.0408	1	EA	ASSY, CONVEX LENS
3	22.9661.0434	3	EA	ASSY, CAM FOLLOWER SHAFT
4	53.6522.0001	3	EA	SCREW, 6-32 X 1/4" PPZ
5	53.6678.0013	3	EA	SCREW, SHLDR 4-40TH .125" DIA .188" LG SOC HD SS
6	55.6538.0001	3	EA	WASHER, #6 LOCK INTERNAL TOOTH
7	55.6568.0050	3	EA	SPRING, CPRSN .300" OD 2.500" LG .022" DIA SS
8	55.6677.0025	3	EA	WASHER, .354" OD .195" ID .032" THK FLAT SS
9	55.6677.0033	3	EA	WASHER, .281" OD .125" ID .032" THK FLAT SS
10	55.6697.0016	3	EA	STANDOFF, 3/16" RND 6-32 1.500" LG MF SS

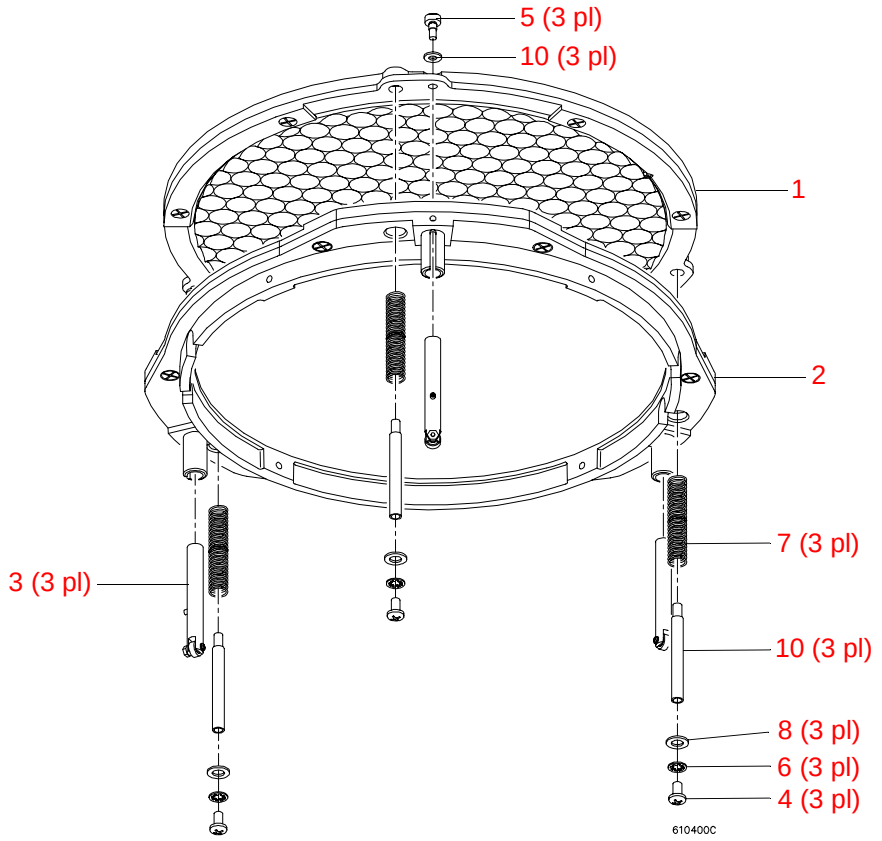


Figure 3-32: Beam Spreader Assembly

Concave Lens Assembly

22.9661.0407 (VL2412/VL2414/VL2416 ONLY) Rev C1

Refer to Figure 3-33.

No.	Item	Qty.	UM.	Description
1	10.9661.0404	1	EA	CLAMP, CONCAVE LENS TOP
2	10.9661.0405	1	EA	CLAMP, CONCAVE LENS BOTTOM
3	10.9661.0406	2	EA	GASKET LENS
4	12.9661.0480	1	EA	TEMPERED & MASKED, CONCAVE LENS ARRAY
5	53.6542.0001	6	EA	SCREW, 6-32 X 5/16" PFB

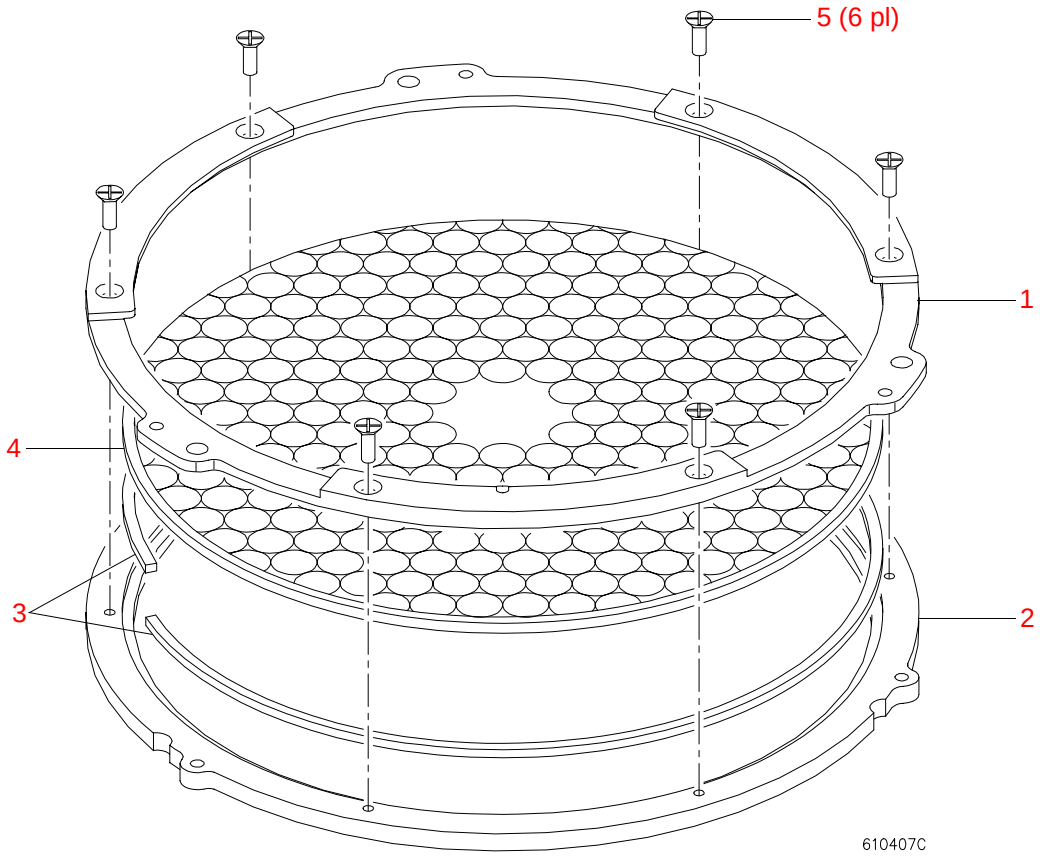


Figure 3-33: Concave Lens Assembly

Convex Lens Assembly

22.9661.0408 (VL2412/VL2414/VL2416) Rev D

Refer to Figure 3-34.

No.	Item	Qty.	UM.	Description
1	10.9661.0401	1	EA	CLAMP, CONVEX LENS TOP
2	10.9661.0406	2	EA	GASKET LENS
3	12.9661.0476	1	EA	CONVEX LENS ARRAY, TEMPERED, AR COATED & MASKED
4	22.9661.0402	1	EA	ASSY, CONVEX LENS BOTTOM CLAMP
5	53.6542.0001	6	EA	SCREW, 6-32 X 5/16" PFB

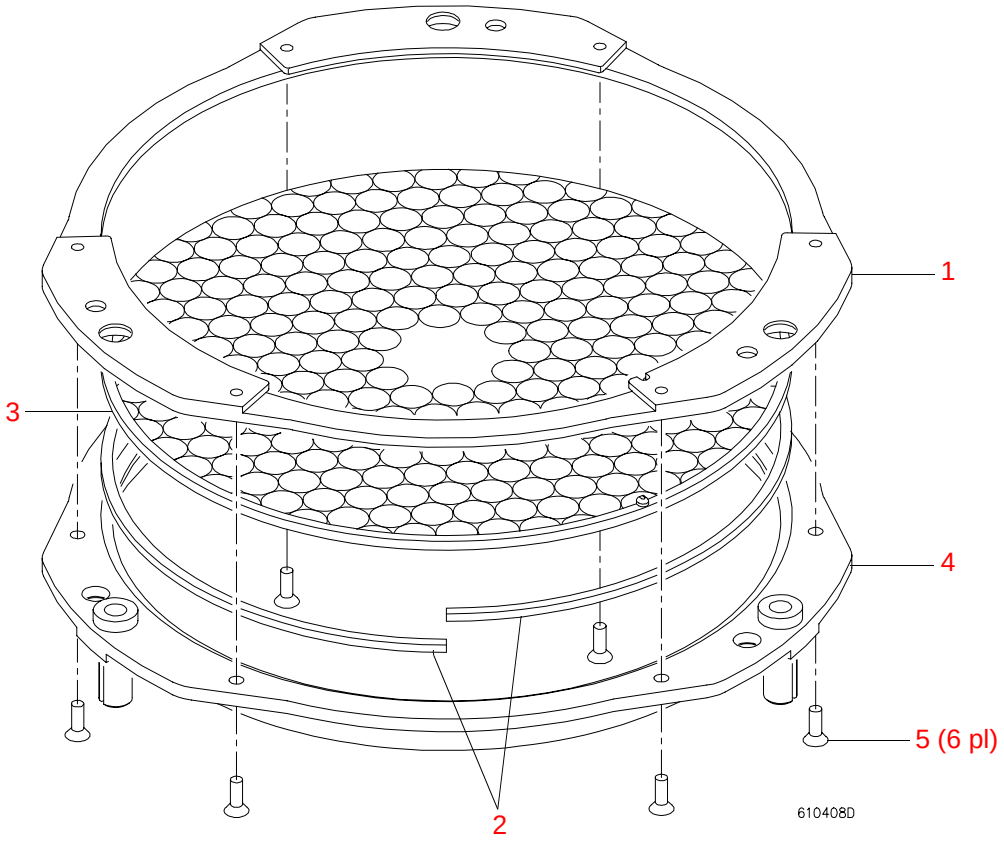


Figure 3-34: Convex Lens Assembly

Cam Follower Shaft Assembly

22.9661.0434 (VL2412/VL2414/VL2416 ONLY) Rev A

Refer to Figure 3-35.

No.	Item	Qty.	UM.	Description
1	10.9661.0431	1	EA	SHAFT, CAM FOLLOWER
2	53.2009.0000	1	EA	NUT, 0-80
3	53.6661.0002	1	EA	SCREW, 0-80 X 5/16" LG PPZ
4	54.1245.0001	1	EA	BEARING, BALL .0781" BORE .250" OD EXTND INNER RACE
5	55.6612.0019	1	EA	PIN, SPRING .0781DIA .250" LG SS

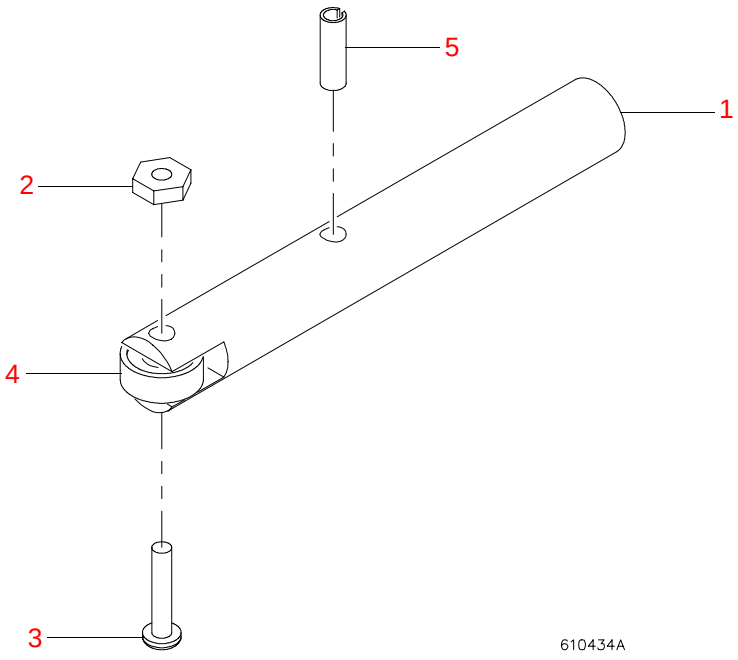


Figure 3-35: Cam Follower Shaft Assembly

Beam Spreader Heat Shield Assembly

22.9661.0424 (VL2412/VL2414/VL2416 ONLY) Rev C

Refer to Figure 3-36.

No.	Item	Qty.	UM.	Description
1	10.9661.0414	1	EA	HEAT SHIELD, BEAM SPREADER
2	10.9661.0423	1	EA	INSULATION, HEAT SHIELD
3	10.9661.0440	1	EA	TRAY, STEPPER MOTOR FAN MOUNT
4	10.9661.0441	1	EA	DUCT, STEPPER MOTOR FAN
5	53.6534.0002	4	EA	RIVET, 3/32" OD POP 3/16 GRIP RNG ALUM

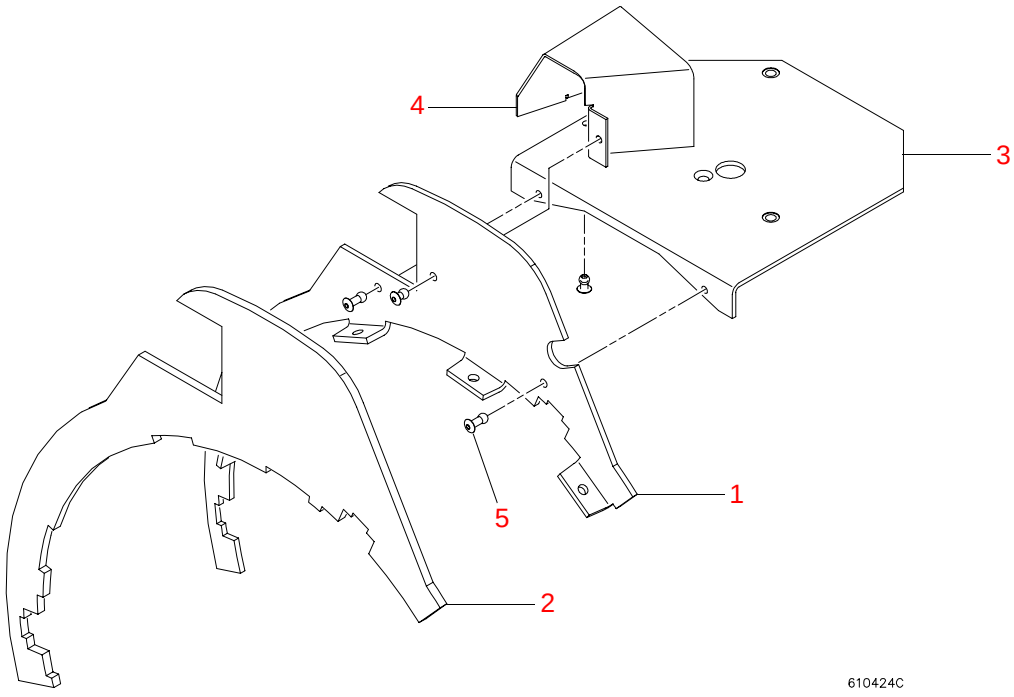


Figure 3-36: Beam Spreader Heat Shield Assembly

Cam Ring Assembly

22.9661.0443 (VL2412/VL2414/VL2416 ONLY) Rev J

Refer to Figure 3-37.

No.	Item	Qty.	UM.	Description
1	10.9661.0429	2	EA	BELT CLAMP
2	10.9661.0436	3	EA	WHEEL, TEFLON
3	10.9661.0447	1	EA	MACHINED CAM RING, BEAM SPREADER
4	10.9661.0532	1	EA	BELT, TIMING XL .200" PITCH 145 GROOVE
5	53.6575.0005	1	EA	SCREW, 8-32 X 1 1/2" PPZ
6	53.6598.0312	4	EA	SCREW, 4-40 X 5/16" PFB
7	55.2203.0001	9	EA	SCREW, 4-40 X 1/4 " PPZ
8	55.2270.0002	1	EA	CAP, 1/8" ID 1/2" HGT HI-TEMP VINYL BLACK
9	55.6612.0024	1	EA	PIN, 5/32" OD X 1" TYPE C LOW CARBON STEEL
10	55.6697.0017	3	EA	STANDOFF, 3/16" RND 4-40 .312" LG MF SS

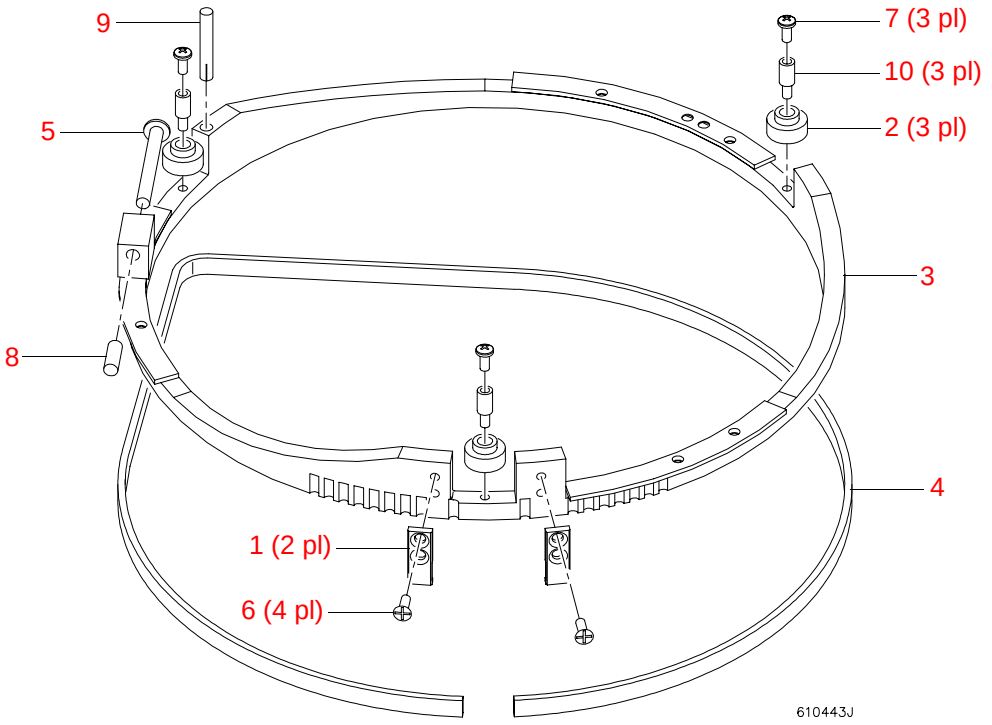


Figure 3-37: Cam Ring Assembly

Light Baffle Ring Bulkhead Assembly

22.9661.0450 (VL2412/VL2414/VL2416 ONLY) Rev A

Refer to Figure 3-38.

No.	Item	Qty.	UM.	Description
1	10.9661.0454	1	EA	INSULATION, LIGHT BAFFLE BULKHEAD, TOP
2	10.9661.0455	4	EA	INSULATION, LIGHT BAFFLE BULKHEAD, BOTTOM
3	22.9661.0452	1	EA	FAB ASSY, LIGHT BAFFLE RING CAN
-	10.9661.0453	1	EA	LIGHT BAFFLE RING SPLICE
-	10.9661.0459	1	EA	LIGHT BAFFLE RING OUTER CAN
-	12.9661.0444	1	EA	STIFFENING RING, BAFFLE BULKHEAD
4	22.9661.0457	1	EA	ASSY, LIGHT BAFFLE CENTER
5	55.2203.0001	3	EA	SCREW, 4-40 X 1/4" PPZ
6	55.6537.0001	3	EA	WASHER, #4 LOCK INTERNAL TOOTH

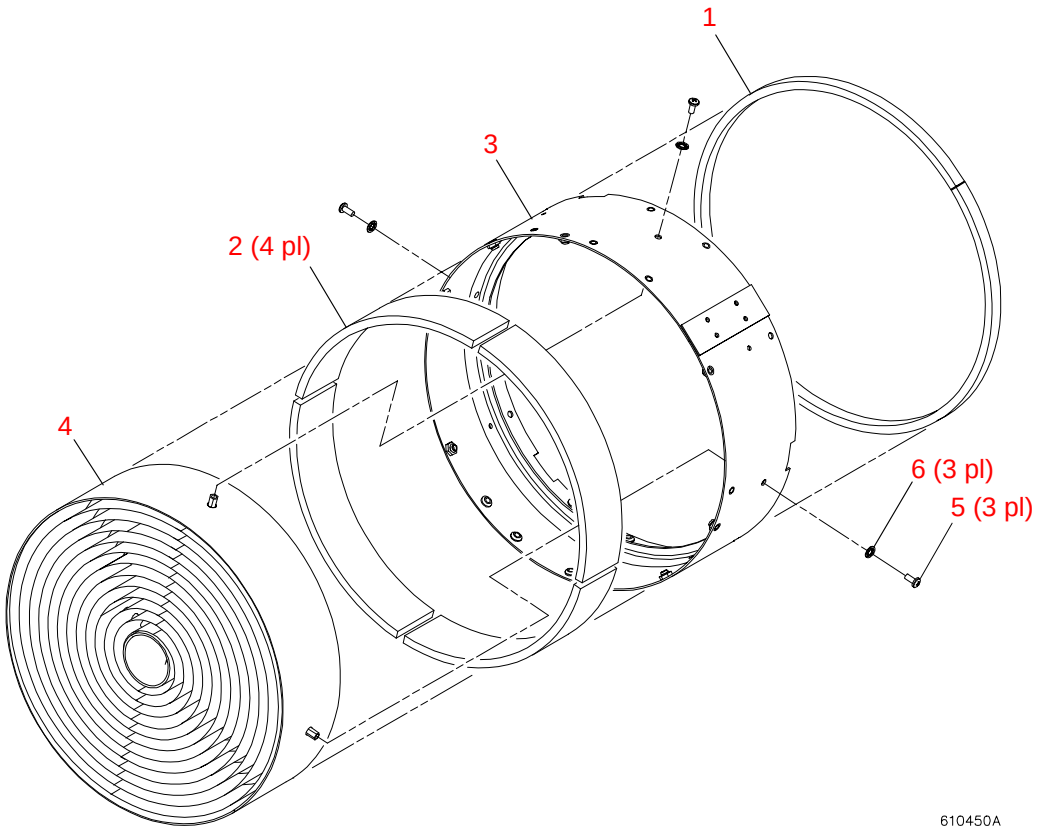


Figure 3-38: Light Baffle Ring Bulkhead Assembly

Light Baffle Center Assembly

22.9661.0457 (VL2412/VL2414/VL2416 ONLY) Rev 0

Refer to Figure 3-39.

No.	Item	Qty.	UM.	Description
1	10.9634.0133	1	EA	PLUG, HUB
2	10.9661.0411	1	EA	BAFFLE RING COIL, 7 DEGREE
3	10.9661.0456	1	EA	LIGHT BAFFLE RING INNER CAN
4	10.9661.0458	1	EA	LIGHT BAFFLE CENTER
5	53.5704.0250	4	EA	SCREW, 4-40 X 1/4" SCSS
6	55.6669.0008	4	EA	STANDOFF, 5/32" HEX 4-40 3.312" LG SS BLK

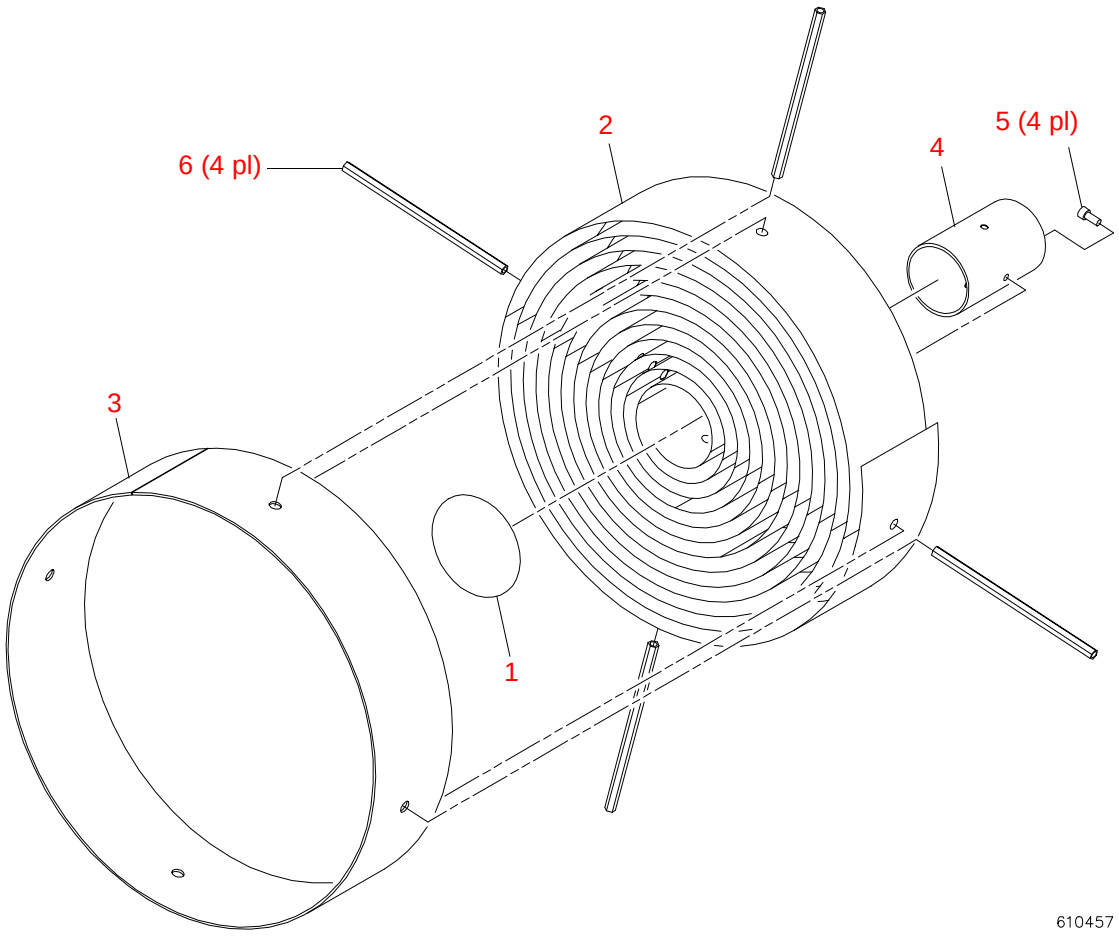


Figure 3-39: Light Baffle Center Assembly

Yoke

Yoke Assembly

22.9661.0600.01 (VL2411/VL2412) Rev J
22.9661.0600.02 (VL2413/VL2414/VL2415/VL2416) Rev J

Refer to Figure 3-40.

No.	Item	Qty.	UM.	Description
1	10.9667.0658	1	EA	COUNTERWEIGHT, YOKE
2	22.9661.0605	1	EA	FAB ASSY, YOKE STRUCTURE
3	22.9661.0609	2	EA	ASSY, YOKE FAN
4	23.9650.3327	1	EA	ELEC ASSY, RELAY
5	24.9661.1125	1	EA	PCB ASSY, IGNITOR **(VL2413/VL2414/VL2415/VL2416 ONLY)**
6	24.9661.1400	2	EA	PCB ASSY, AUX CONTROLLER
7	25.9661.1526	2	EA	CABLE ASSY, IGNITOR TO RELAY **(VL2413/VL2414/VL2415/VL2416 ONLY)**
8	25.9661.1533	1	EA	CABLE ASSY, YOKE FAN POWER
9	52.6498.0014	1	EA	CONN, 14 POS DUAL ROW 1.11 "TH .650" .230"
10	53.2001.0001	2	EA	NUT, 10-32 KEPS ZINC PLATED
11	53.5634.0250	8	EA	SCREW, 4-40 X 1/4" PFSS BLACK
12	53.6525.0001	6	EA	SCREW, 6-32 X 5/16" PPZ **(VL2411/VL2412 ONLY)**
		10	EA	SCREW, 6-32 X 5/16" PPZ **(VL2413/VL2414/VL2415/VL2416 ONLY)**
13	55.3301.0006	2	EA	WASHER, #6, FLAT SS
14	55.3303.0006	8	EA	WASHER, #6 LOCK INT.TOOTH SS **(VL2411/VL2412 ONLY)**
		12	EA	WASHER, #6 LOCK INT.TOOTH SS **(VL2413/VL2414/VL2415/VL2416 ONLY)**
15	55.6541.0002	2	EA	GROMMET, 1" ID 1 3/4" OD 1 3/8" GRV DIA RUBBER
16	55.6658.0009	4	EA	STANDOFF, 1/4" HEX 6-32 .750" LG MF SS

Yoke Assembly (cont.)

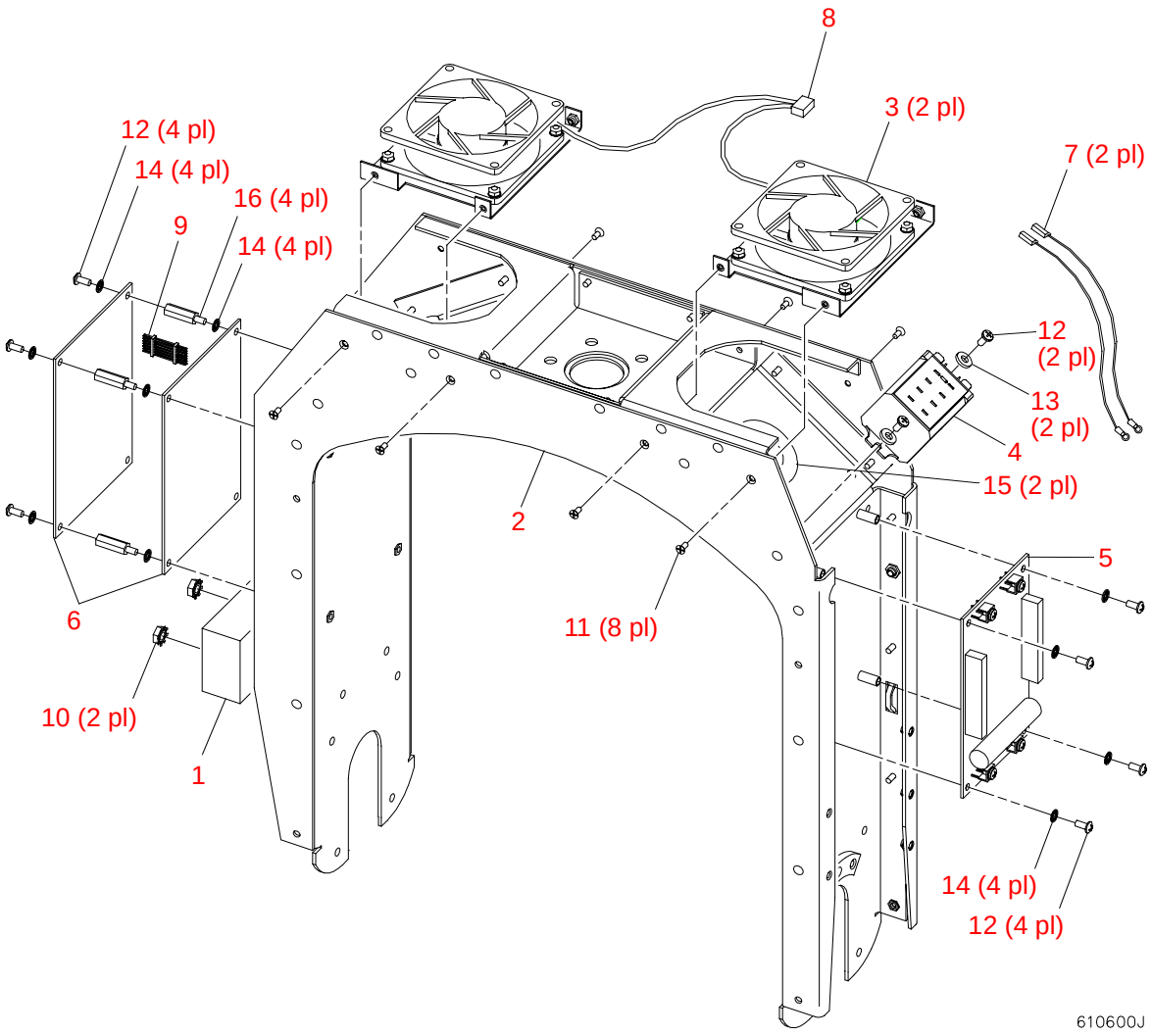


Figure 3-40: Yoke Assembly

Ignitor PCB Assembly

24.9661.1125 (VL2413/VL2414/VL2415/VL2416 ONLY) Rev D

Refer to Figure 3-41.

No.	Item	Qty.	UM.	Description	Ref.
1	11.9661.1125	1	EA	PCB, IGNITOR	
2	51.5006.0003	1	EA	INSULATOR, TO-220, 53.77-AC	UNDER SG1
3	52.8218.0002	4	EA	TERM, PC VERT MNT 6-32 SCREW 15A	J1-J4
4	53.6522.0001	4	EA	SCREW, 6-32 X 1/4" PPZ	J1-J4
5	55.6538.0001	4	EA	WASHER, #6 LOCK INTERNAL TOOTH	J1-J4
6	60.1422.1002	12	EA	RES, 1/4W 5% 10.0 MEG CF	R1-R12
7	62.2032.0001	1	EA	CAP, .01UF, 3000V, RAD, CERAMIC, .375", 20%	C14
8	62.3000.0033	13	EA	CAP, .033UF 1000V RAD POLYPRO .600" 10%	C1-C13
9	62.3002.0102	1	EA	CAP, .001UF, 15KV, RAD, CERAMIC DISC	C15
10	68.4515.0003	1	EA	INDUCTOR, HIGH VOLT, IGNITOR	L1
11	75.7102.0001	1	EA	SPARK GAP, 2.5KV	SG1
12	82.4311.0818	12	EA	DIODE, MR818 RECTIFIER 1KV 1A	D1-D12
13	82.5310.7250	2	EA	DIODE, 1.5KE250CA Z CLIPPER 250V 5W	Z1 & Z2

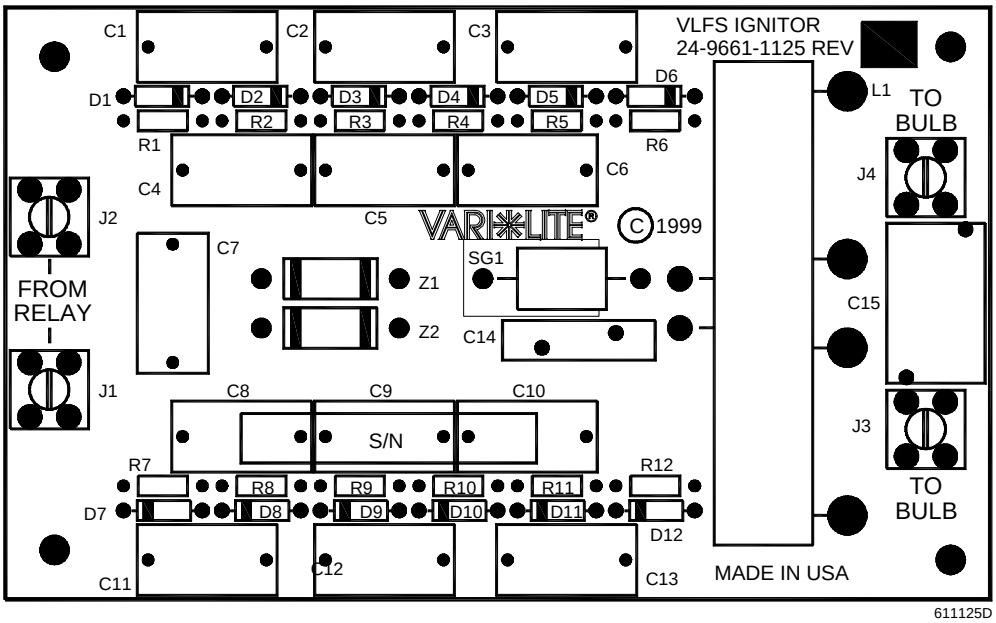


Figure 3-41: Ignitor PCB Assembly

Aux Controller PCB Assembly

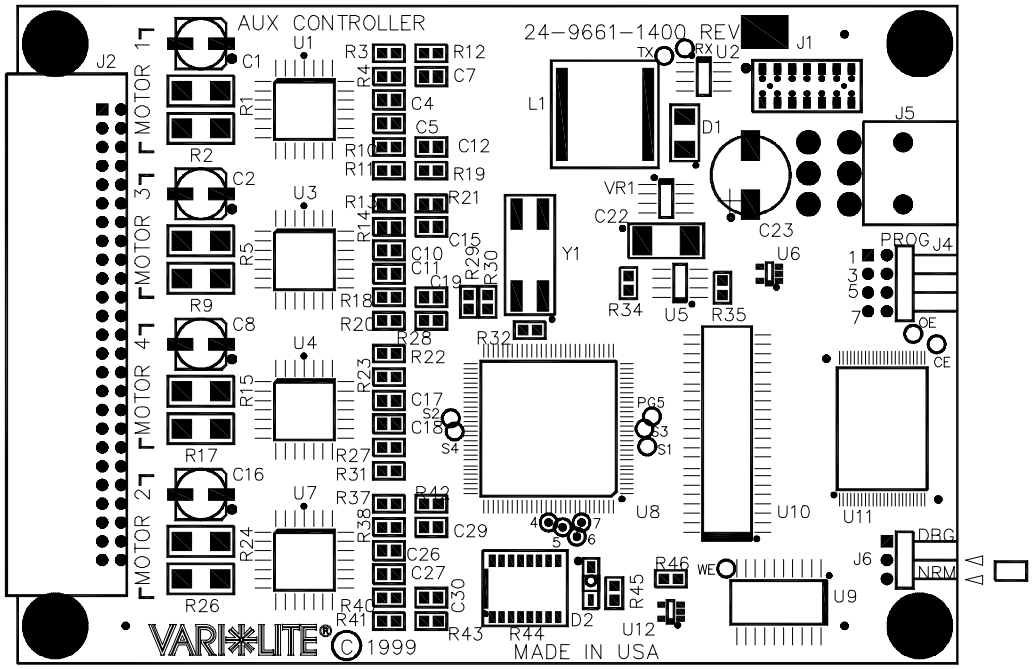
24.9661.1400 Rev J

Refer to Figure 3-42.

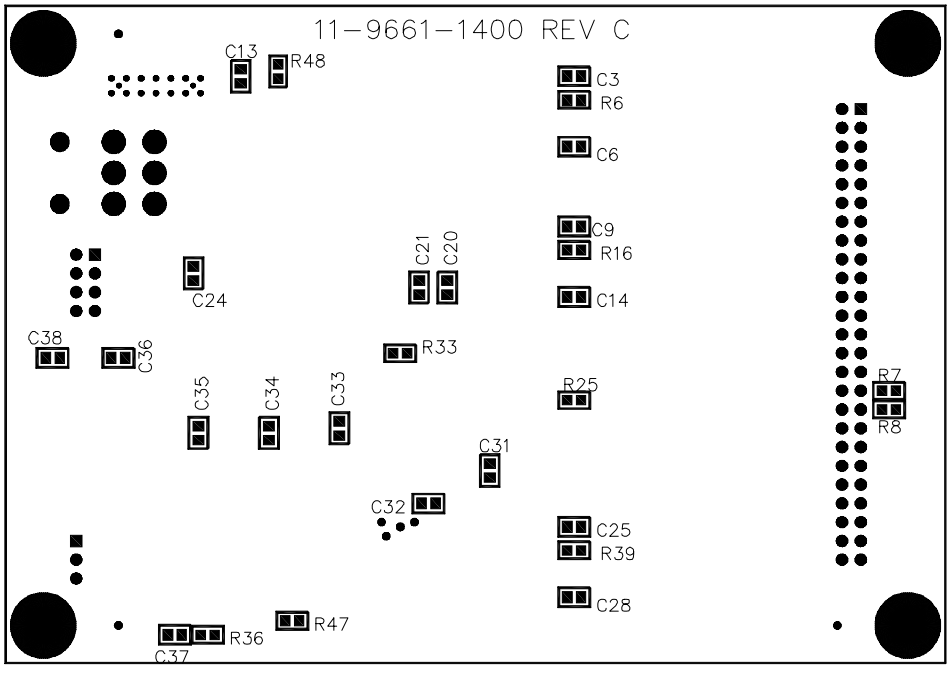
No.	Item	Qty.	UM.	Description	Ref.
1	11.9661.1400	1	EA	PCB, AUX CONTROLLER	
2	52.6399.0001	1	EA	JUMPER, PROGRAMMING	XJ6
3	52.6499.0007	1	EA	CONN, 14POS DUAL ROW 2MM SOCKET STRIP FEED THRU	J1
4	52.6578.0006	1	EA	HEADER, 6CIR RT ANG DUAL ROW W/PEGS TIN PLT	J5
5	52.6590.0003	1	EA	HEADER, 3PIN SGL ROW R/A .025" SQ PST	J6
6	52.6591.0008	1	EA	HEADER, 8PIN DBL ROW R/A .025" SQ PST	J4
7	52.6611.0010	1	EA	HEADER, 50POS DBL ROW SHROUDED .025SQ RT ANG	J2
8	60.3242.1000	8	EA	RES, 1W 1% 1.0 OHM WW SUR MT	R1, R2, R5, R9, R15,R17, R24 & R26
9	60.9460.1003	2	EA	RES, .1W 5% 1.0 K 100V CHIP THICK FILM SMT0805	R29 & R48
10	60.9460.1004	7	EA	RES, .1W 5% 10.0 K 100V CHIP THICK FILM	R30, R33-R36, R46 & R47
11	60.9460.1802	2	EA	RES, .1W 5% 180.0 OHM 100V CHIP SUR MT	R7 & R8
12	60.9460.3303	1	EA	RES, .1W 5% 3.3 K 100V CHIP THICK FILM	R45
13	60.9460.7505	1	EA	RES, .1W 5% 750.0 K 100V CHIP THICK FILM	R32
14	60.9461.1504	6	EA	RES, .1W 1% 15.0 K 100V CHIP THK FLM SMT0805	R6, R16, R22, R25, R31 & R39
15	60.9461.2433	8	EA	RES, .1W 1% 2.4 K 100V CHIP THK FLM SMT0805	R4, R10, R14, R18, R23, R27, R38 & R40
16	60.9461.7503	12	EA	RES, .1W 1% 7.5 K 100V CHIP THK FLM SMT0805	R3, R11-R13, R19-R21, R28, R37 & R41-R43
17	61.4817.1004	1	EA	RES NET, 10K .08W 50V 5% SUR MT	R44
18	62.3009.0472	4	EA	CAP, 4700PF 50V 10% MONO CER CHIP SUR MT	C5, C11, C18 & C27
19	62.3009.0473	12	EA	CAP, .047UF 50V 10% MONO CER CHIP SUR MT	C3, C6, C7, C9, C12, C14, C15, C19, C25 & C28-C30
20	62.4000.0105	14	EA	CAP, .1UF 50V 20% CER CHIP SUR MT Z5U EIA0805	C4, C10, C13, C17, C24, C26 & C31-C38
21	62.4000.0200	2	EA	CAP, 20PF 50V 5% CER CHIP SUR MT COG EIA0805	C20 & C21
22	62.4205.0107	1	EA	CAP, 100UF 10V 20% SUR MT	C22

No.	Item	Qty.	UM.	Description	Ref.
23	62.4225.0107	1	EA	CAP, 100UF 35V 20% ALUM ELECTRO SUR MT	C23
24	62.4228.0106	4	EA	CAP, 10UF 50V 20% ALUM ELECTRO SUR MT	C1, C2, C8, C16
25	64.4016.0506	1	EA	CRYSTAL, 16MHZ SUR MT	Y1
26	68.4566.0001	1	EA	INDUCTOR, 173UH PE-53819S LCI-37 SUR MT	L1
27	82.5325.0001	1	EA	DIODE, MBRS130LT3 SCHOTTKY SUR MT	D1
28	83.3163.0001	1	EA	IC, MC34164D-5 SENSING CIRCUIT UNDERVOLTAGE SURFACE MOUNT	U5
29	83.3173.0005	1	EA	IC, LM2594M-5 150KHZ 0.5A STEP-DOWN VOLTAGE REGULATOR	VR1
30	84.0068.0812	1	EA	IC, MC68HC812A4PV8 (UNPRGMMD) 16BIT MICROCONTROLLER	U8
31	84.4234.0002	1	EA	IC, RS485 TRANSCEIVER SUR MT SOIC PKG	U2
32	84.4263.0001	1	EA	IC, AD7302BR 8-BIT DAC 2.7-5.5V PARALLEL INPUT DUAL VOLTAGE OUTPUT	U9
33	84.4270.0001	1	EA	IC, NC7S08M5 SINGLE AND GATE SUR MT	U12
34	84.4285.0001	1	EA	IC, NC7S04M5 HS INVERTER	U6
35	85.3773.0001	4	EA	IC, STEPMOTOR DRIVER	U1, U3, U4, U7
36	87.7247.0001	1	EA	IC, AM29F200BT FLASH MEMORY 5V	U11
37	87.7302.00XX	1	EA	INSTALLER DISK SET, BURNER VL2000 LUMINAIRES	
38	88.8130.0001	1	EA	LED, GREEN SUR MT WATER CLEAR LENS (REEL)	D2

Aux Controller PCB Assembly (cont.)



TOP VIEW



BOTTOM VIEW

611400J

Figure 3-42: Aux Controller PCB Assembly

Tilt Motor Assembly

22.9661.0665 Rev E

Refer to Figure 3-43.

No.	Item	Qty.	UM.	Description
1	10.9661.0660	1	EA	PLATE, PAN/TILT - MOTOR MOUNT
2	10.9661.0662	1	EA	BRACKET, EOT SENSOR ADUSTABLE -TILT
3	22.9661.0608	1	EA	ASSY, DRIVE PULLEY
-	10.9661.0640	1	EA	CODEWHEEL, 90 COUNT
-	10.9661.0649	1	EA	TIMING PULLEY, 2MM GT, 17 TOOTH
-	53.5561.0250	2	EA	SCREW, 6-40 X 1/4" SET CONE POINT
4	23.9661.1253	1	EA	ELEC ASSY, PAN EOT SENSOR
-	52.6524.0006	1	EA	CONN, HOUSING 6POS RECEPTACLE
-	52.8346.0001	4	EA	CONTACT, 24-30AWG FEMALE CRIMP
-	86.7002.0003	1	EA	SWITCH, SLOTTED OPTICAL
5	24.9661.0629	1	EA	PCB ASSY, PAN/TILT ENCODER
6	44.5034.0001	1	EA	MOTOR, 4.4 OHM, KT60KM1-002, 3-PHASE 1.2 DEG STEP ANGLE, SINGLE SHAFT
7	53.2200.0006	4	EA	NUT, 6-32 KEPS SS
8	53.2202.0004	2	EA	NUT, 4-40 HEX SS NYLON INSERT
9	53.5506.0875	4	EA	SCREW, 6-32 X 7/8 " PPSS
10	53.6519.0001	2	EA	SCREW, 4-40 X 5/8", PPZ
11	53.6520.0002	2	EA	SCREW, 4-40 X 7/16" PPZ
12	53.6522.0001	4	EA	SCREW, 6-32 X 1/4" PPZ
13	55.3301.0004	2	EA	WASHER, #4 FLAT SS
14	55.6503.0003	4	EA	WASHER, .750" OD #8 SS
15	55.6509.0001	2	EA	WASHER, SHOULDER (HEATSINK)
16	55.6579.0013	4	EA	GROMMET, 3/8" HOLE .25" ID .125" THK YELLOW ISODAMP
17	55.6627.0001	2	EA	WASHER, #6 SPLIT LOCK
18	55.6655.0005	4	EA	SPACER, 1/4" RND .359" LG .141" THRU ALUM

Tilt Motor Assembly (cont.)

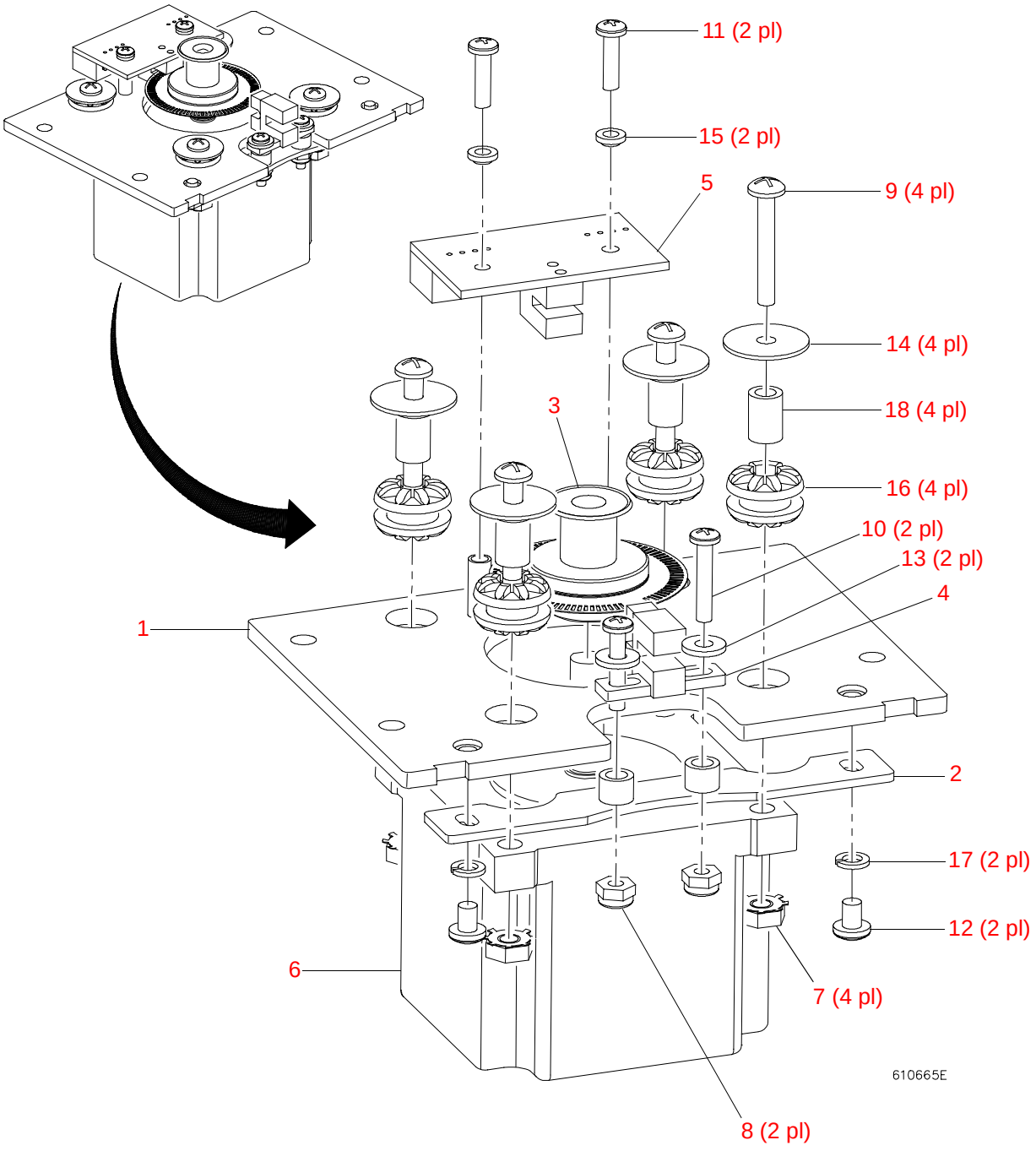


Figure 3-43: Tilt Motor Assembly

Pan/Tilt Encoder PCB Assembly

24.9661.0629 Rev 0

Refer to Figure 3-44.

No.	Item	Qty.	UM.	Description	Ref.
1	11.9661.0629	1	EA	PCB, ENCODER SENSOR	
2	52.6613.0005	1	EA	HEADER, 5POS SGL ROW SHROUDED LATCHING	J1
3	52.6613.0006	1	EA	HEADER, 6POS SGL ROW SHROUDED LATCHING	J2
4	60.9460.1802	2	EA	RES, .1W 5% 180.0 OHM 100V CHIP SUR MT	R1, R2
5	62.3009.0103	1	EA	CAP, .01UF 50V 10% MONO CER CHIP SUR MT	C1
6	86.7009.0001	1	EA	IC, GP1A70R OPIC PHOTOINTERRUPTER	S1

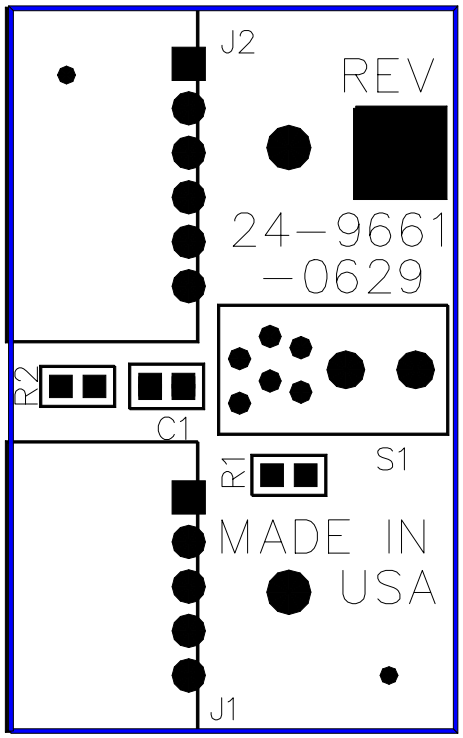


Figure 3-44: Pan/Tilt Encoder PCB Assembly

Notes

Enclosure

Enclosure Assembly

21.9661.0004.01 (VL2411/VL2412) Rev U
21.9661.0004.02 (VL2413/VL2414) Rev V
21.9661.0004.03 (VL2415/VL2416) Rev W

Refer to Figures 3-45 and 3-46.

No.	Item	Qty.	UM.	Description
1	04.9640.0374	1	EA	LABEL, P.E. GROUND
2	04.9661.0040	1	EA	LABEL, 2000 SERIES COMPLIANCE
3	04.9661.1218	1	EA	LABEL, PATENT, VL2201 & VL2400 SERIES LUMINAIRES
4	10.9640.0002	2	EA	PAD, CHOKE
5	10.9661.0670	1	EA	BRACKET, STABILIZER, SLOTTED
6	10.9661.0671	1	EA	BRACKET, STABILIZER, NO SLOT
7	10.9661.1258	1	EA	BRACKET, APS SIDE
8	10.9661.1352	1	EA	DUCT, UPPER ENCLOSURE AIR
9	10.9661.1354	1	EA	AIR SEAL, UPPER ENCLOSURE
10	10.9661.1358	1	EA	AIR SEAL, DUCT
11	10.9661.1359	1	EA	AIR SEAL, DUCT **(VL2411/VL2412 ONLY)**
12	10.9661.1360	1	EA	INSULATOR, BUCK CHOKE UPPER ENCLOSURE
13	10.9661.1361	2	EA	INSULATOR, CHOKE PFC UPPER ENCLOSURE **(VL2413/VL2414/VL2415/VL2416 ONLY)**
14	10.9661.1362	2	EA	PAD, CHOKE PFC NOTCHED **(VL2413/VL2414/VL2415/VL2416 ONLY)**
15	10.9661.1366	1	EA	INSULATOR, ADHESIVE BACKED -PFC CHOKE **(VL2413/VL2414/VL2415/VL2416 ONLY)**
16	12.3126.1103	1	EA	MODIFIED POWER SUPPLY, 130W +24V/5.4A CURRENT SHARE
17	12.9661.0657	1	EA	TILT DAMPER, 2400 YOKE STRUCTURE
18	12.9661.1236	2	EA	MACHINED, COVER FRONT
19	12.9661.1238	2	EA	MACHINED, COVER SIDE
20	21.9661.1205	1	EA	ASSY, CONNECTOR PANEL
21	21.9661.1208	1	EA	ASSY, PAN TUBE
22	21.9661.1254	1	EA	ASSY, COVER -VENTILATION
23	21.9661.1365	2	EA	ASSY, TOP COVER
24	22.9661.0664	1	EA	ASSY, PAN MOTOR
25	22.9661.1351	1	EA	FAB ASSY, UPPER ENCLOSURE

No.	Item	Qty.	UM.	Description
26	23.9661.1269	1	EA	ASSY, BALLAST MODULE, 1200W ARC **(VL2415/VL2416 ONLY)**
	23.9661.1279	1	EA	ASSY, BALLAST MODULE 625W ARC **(VL2413/VL2414 ONLY)**
	23.9661.1302	1	EA	ASSY, DIMMER MODULE, 1200W SCR **(VL2411/VL2412 ONLY)**
27	23.9661.1535	1	EA	FAN ASSEMBLY, LOW SPEED **(VL2411/VL2412 ONLY)**
	23.9661.1534	1	EA	FAN ASSEMBLY, HIGH SPEED **(VL2413/VL2414/VL2415/VL2416 ONLY)**
	25.9661.1512	1	EA	CABLE ASSY, AC INPUT LINK **(not shown)**
	25.9661.1513	1	EA	CABLE ASSY, AC INPUT SPLITTER **(not shown)**
	25.9661.1514	1	EA	CABLE ASSY, LVS CHASSIS GND **(not shown)**
	25.9661.1516.02	1	EA	CABLE ASSY, MAIN TO AUX/DATA & PWR -2400 **(not shown)**
	25.9661.1517.02	1	EA	CABLE ASSY, PAN/TILT CONTROL -2400 **(not shown)**
	25.9661.1520	1	EA	CABLE ASSY, CHASSIS TO YOKE GND **(not shown)**
	25.9661.1525	1	EA	CABLE ASSY, LAMP SUPPLY TO RELAY **(not shown)**
	25.9661.1532	1	EA	CABLE ASSY, DATA I/O LINK -VL2400 **(not shown)**
	25.9661.1544.01	1	EA	CABLE ASSY, LAMP SUPPLY HARNESS, VLT130 **(VL2413/VL2414/VL2415/VL2416 ONLY)**
	25.9661.1544.02	1	EA	CABLE ASSY, LAMP SUPPLY HARNESS, VLT130 **(VL2411/VL2412 ONLY)**
28	46.6003.0001	1	EA	MOUNTING DISC, METAL 60MM DIA **(VL2413/VL2414/VL2415/VL2416 ONLY)**
29	46.6004.0001	1	EA	MOUNTING DISC, METAL 90MM DIA
30	53.2002.0003	1	EA	NUT, 6-32 HEX ZINC NYLON INSERT
31	53.2200.0006	2	EA	NUT, 6-32 KEPS SS
32	53.6514.0001	1	EA	SCREW, 10-32 X 1 1/4" PPB **(VL2411/VL2412/VL2413/VL2414 ONLY)**
	53.6563.0001	1	EA	SCREW, 10-32 X 2" PPZ (**VL2415/VL2416 ONLY**
33	53.6517.0001	4	EA	SCREW, 10-32 X 3/8" PPZ
34	53.6543.0001	4	EA	SCREW, 6-32 X 3/8" PPB
35	53.6545.0003	3	EA	SCREW, 8-32 X 3/8" PFZ **(VL2413/VL2414/VL2415/VL2416 ONLY)**
36	53.6545.0004	2	EA	SCREW, 8-32 X 3/8" PPZ **(VL2413/VL2414/VL2415/VL2416 ONLY)**
37	53.6558.0001	13	EA	SCREW, 6-32 X 3/8" PPZ
38	53.6558.0010	4	EA	SCREW, 6-32 X 4/4" LG PPZ BLACK SEMS-EXT WSHR
39	53.6594.0003	1	EA	SCREW, 10-32 X 1-1/2" PPZ **(VL2413/VL2414/VL2415/VL2416 ONLY)**
40	53.6607.0001	4	EA	SCREW, 6-32 X 1/4" PPB
41	53.6608.0003	2	EA	SCREW, 6-32 X 3/16" LG PPZ
42	53.6609.0001	6	EA	SCREW, 6-32 X 3/8" PFZ
43	53.6610.0003	4	EA	SCREW, 6-32 X 7/16" PPZ

No.	Item	Qty.	UM.	Description
44	53.6614.0003	1	EA	SCREW, 6-32 X 5/8" PFZ
45	53.6627.0001	4	EA	SCREW, 10-32 X 5/8" PPB
46	53.6653.0502	4	EA	SCREW, 1/4-20 X 1/2" LG SOC HD CAP ZINC
47	54.2039.0001	1	EA	BELT, GT TIMING 2MM PITCH 182GRV 9MM WD NYL CVRD FBRGLS NEOP
48	55.2030.0001	2	EA	PCB SUPPORT, 3/8" COMBO STACKING SPACER
49	55.2179.0003	1	EA	SADDLE, CABLE .75 X.75" 4 WAY ADH BACK WHITE
	55.2180.0002	0.17	FT	SPIRAL WRAP, 3/8" OD TEFLON **(not shown)**
50	55.2267.0001	2.00	FT	RUBBER STRIP, SPONGE CLSD CELL 3/8" W 3/16" THK ADHV BACK
51	55.3303.0010	4	EA	WASHER, #10 .438" OD .040" THK SPLIT LOCK SS
52	55.6512.0006	2	EA	WASHER, #6 SPLIT LOCK SS
53	55.6549.0001	4	EA	WASHER, 1/4" SPLIT LOCK
54	55.6568.0046	1	EA	SPRING, BLUE EXTSN .120" OD .50" LG .020" WIRE DIA SS
55	55.6627.0001	8	EA	WASHER, #6 SPLIT LOCK
	55.6695.0002	1	ft	HEATSHRINK, 3/8" ADHESIVE WALL
56	55.6775.0009	1	EA	BUSHING, SNAP .750" ID 1" MT HOLE NYLON BLACK
57	55.6807.0002	2	EA	HANDLE, PLASTIC CABINET "U" 4.61" L
58	67.4015.0001	1	EA	FILTER, EMI 16A 250V SINGLE PHASE
59	68.9661.1113	1	EA	CHOKE, BUCK 1200W ARC DIMMER **(VL2411/VL2412 ONLY)**
	68.9661.1123	1	EA	CHOKE, BUCK 400/625W ARC BALLAST **(VL2413/VL2414 ONLY)**
	68.9661.1116	1	EA	CHOKE, BUCK, 1200W ARC BALLAST **(VL2415/VL2416 ONLY)**
60	68.9661.1114	1	EA	CHOKE, 1200W PFC **(VL2415/VL2416 ONLY)**
	68.9661.1124	1	EA	CHOKE, 400/625W PFC **(VL2413/VL2414 ONLY)**

Enclosure Assembly (cont.)

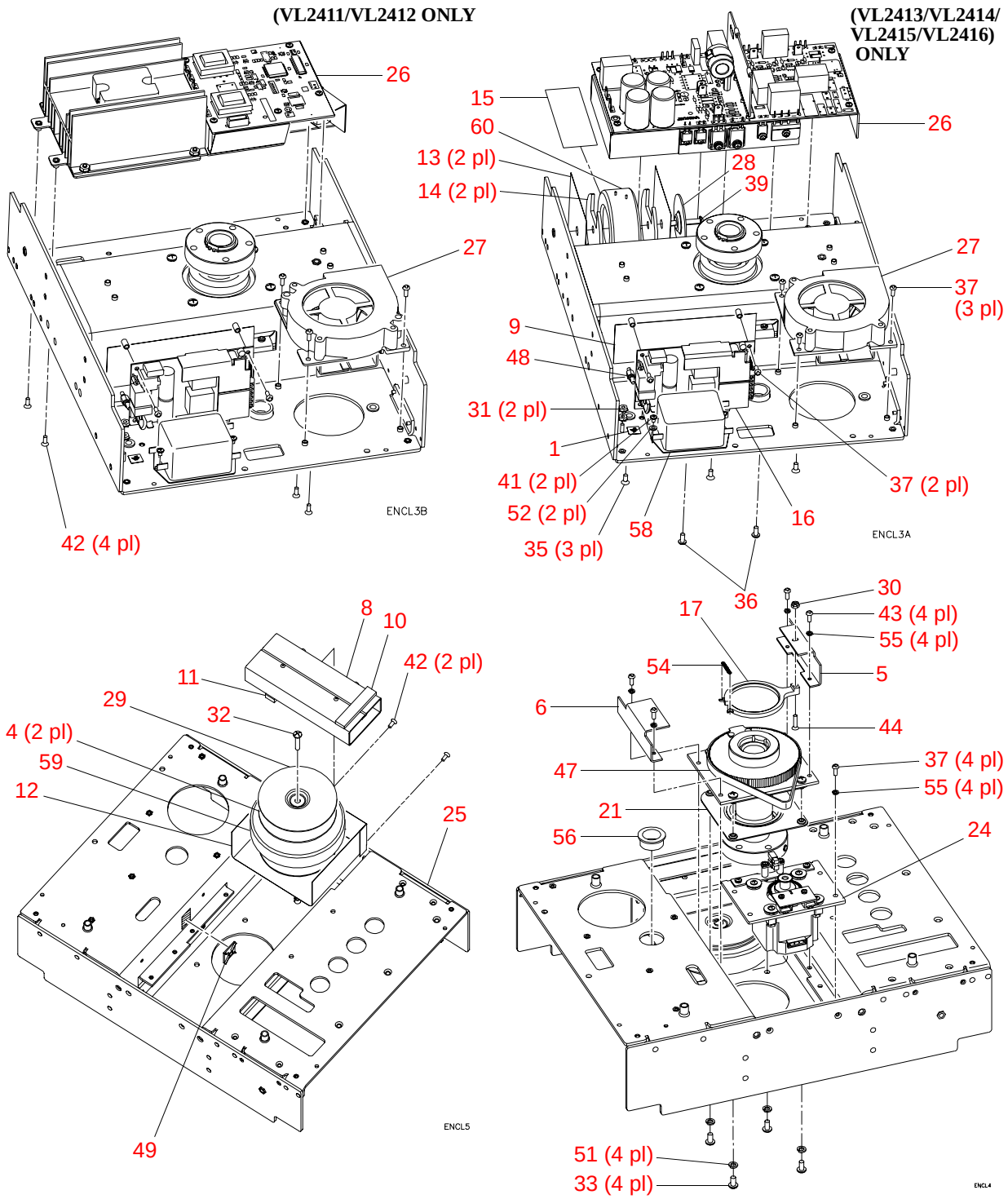


Figure 3-45: Enclosure Assembly (bottom views)

Enclosure Assembly (cont.)

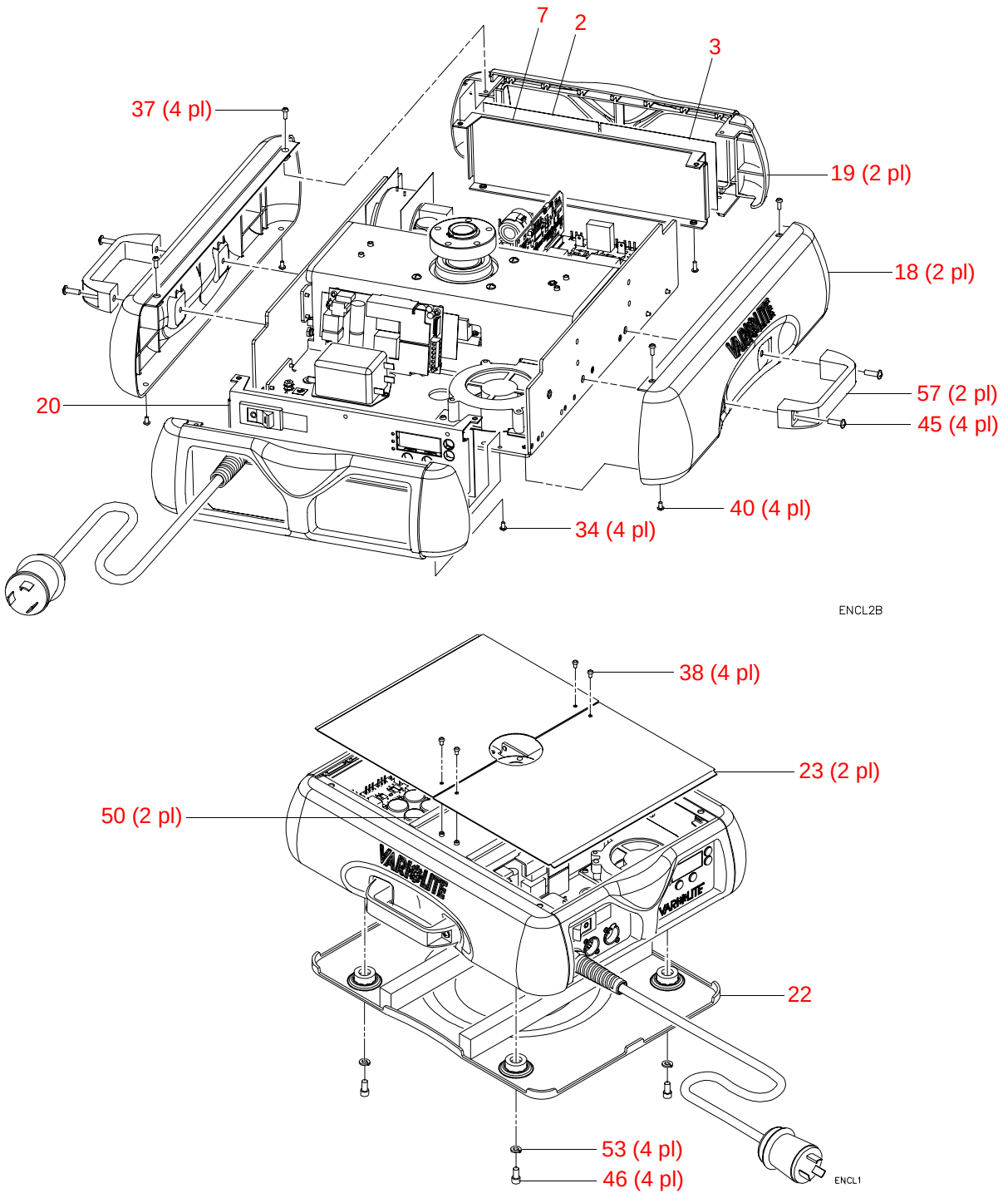


Figure 3-46: Enclosure Assembly (top views)

Connector Panel Assembly

21.9661.1205 Rev E

Refer to Figure 3-47.

No.	Item	Qty.	UM.	Description
1	10.9661.1252	1	EA	LAYOUT, ENCLOSURE OVERLAY
2	10.9661.1259	1	EA	BRACKET, INPUT
3	24.9661.1225	1	EA	PCB ASSY, MAIN CONTROLLER 3-PHASE
4	24.9661.1251	1	EA	PCB ASSY, DMX INPUT
5	25.9661.1511	1	EA	CABLE ASSY, AC INPUT PIGTAIL (EURO) -VL8
6	53.6513.0019	4	EA	SCREW, M3 X 5MM LG PPB METRIC
7	53.6525.0001	2	EA	SCREW, 6-32 X 3/8" PPB
8	55.2253.0001	1	EA	CARD GUIDE, SNAP-IN 6" LONG NYLON NATURAL
9	70.3744.1150	1	EA	C-BREAKER, 15.0A 240V HORIZ 1-0 NON-ILLUM

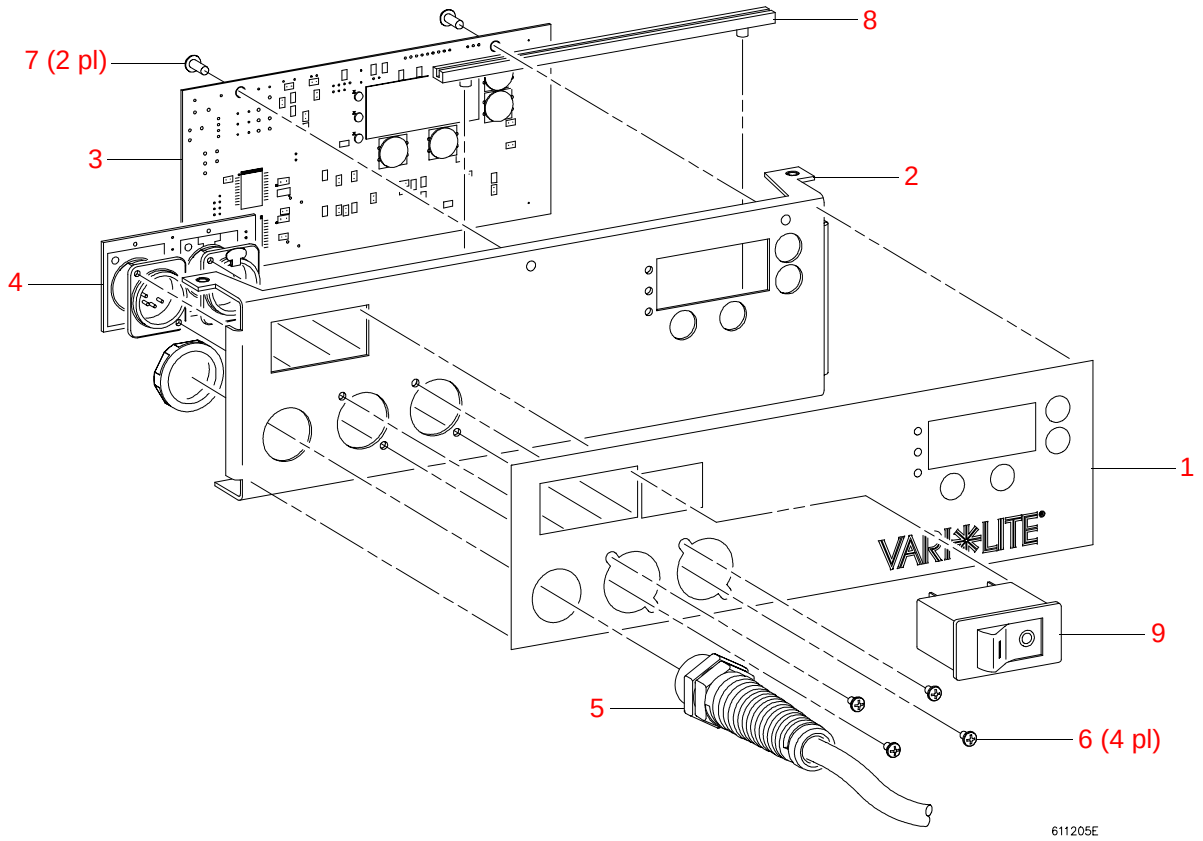


Figure 3-47: Connector Panel Assembly

Main Controller 3-Phase PCB Assembly

24.9661.1225 Rev P

Refer to Figure 3-48.

No.	Item	Qty.	UM.	Description	Ref.
1	10.9661.1275	1	EA	HEATSINK, MAIN CONTROLLER	
2	11.9661.1225	1	EA	PCB, MAIN CONTROLLER 3PHASE	
3	52.6284.0001	1	EA	HEADER, 4POS MTA FRCT LOK STRT POST	J7
4	52.6296.0001	1	EA	HEADER, 8POS MTA FRCT LOK STRT POST	J2
5	52.6297.0001	2	EA	HEADER, 2PIN MTA FRCT LOK STRT POST	J3 & J4
6	52.6399.0001	1	EA	JUMPER, PROGRAMMING	XJ1 & XJ11
7	52.6583.0004	1	EA	HEADER, 4 CIR DUAL ROW W/O PEGS .165" CTRS	J6
8	52.6583.0006	1	EA	HEADER, 6 CIR DUAL ROW W/O PEGS .165" CTRS	J5
9	52.6592.0005	1	EA	HEADER, 5PIN SGL ROW VERT .1" PITCH SHROUDED	J10
10	52.6593.0004	1	EA	HEADER, 2PIN DBL ROW VERT MT 2X2 PIN .025" SQ PIN	J11
11	52.6615.0020	1	EA	CONN, HEADER 20POS DBL ROW SHROUDED STRAIGHT	J9
12	52.6628.0008	1	EA	HEADER ASSY, 8 POS RT ANG DBL ROW W/ HOLD-DOWN MOD	J8
13	52.6629.0003	1	EA	HEADER ASSY, 3 POS RT ANG SGL ROW W/ HOLD-DOWN MOD	J1
14	52.8390.0001	24	EA	CONTACT, SOCKET RND PLATED (AUGAT HOLTITE)	
15	53.5504.0187	2	EA	SCREW, 4-40 X 3/16" PPSS	
16	60.4452.5601	1	EA	RES, 3W 5% 56.0 OHM MET OXIDE FILM AXIAL	R37
17	60.4500.4703	2	EA	RES, .1W 5% 4.7 K CHIP THK FLM SMT	R38 & R40
18	60.9460.1001	2	EA	RES, .1W 5% 10.0 OHM 100V CHIP THICK FILM	R39 & R43
19	60.9460.1003	7	EA	RES, .1W 5% 1.0 K 100V CHIP THICK FILM SMT0805	R16, R17, R23, R29, R31, R33 & R41
20	60.9460.1004	22	EA	RES, .1W 5% 10.0 K 100V CHIP THICK FILM	R1-R9, R11, R18, R19, R22, R24, R25, R30, R35, R36 & R44-R47
21	60.9460.5602	6	EA	RES, .1W 5% 560.0 OHM 100V CHIP THK FILM SUR MT	R10, R12-R15 & R21
22	60.9460.7505	1	EA	RES, .1W 5% 750.0 K 100V CHIP THICK FILM	R20
23	60.9461.1003	2	EA	RES, .1W 1% 1.0 K 100V CHIP THK FLM SMT0805	R27 & R28

No.	Item	Qty.	UM.	Description	Ref.
24	60.9461.7323	2	EA	RES, .1W 1% 7.32 K 100V CHIP THK FLM SMT0805	R26 & R32
25	60.9471.0200	2	EA	RES, 2W 1% 0.2 OHM POWER METAL STRIP SUR MT	R34 & R42
26	62.2104.3826	1	EA	CAP, 82UF 35V RAD ALUM 6.3 X 15MM 20% LOW ESR	C22
27	62.4000.0105	19	EA	CAP, .1UF 50V 20% CER CHIP SUR MT Z5U EIA0805	C1-C14, C17-C20 & C24
28	62.4000.0200	4	EA	CAP, 20PF 50V 5% CER CHIP SUR MT COG EIA0805	C15, C16, C23 & C27
29	62.4003.0102	2	EA	CAP, 1000PF 50V 10% CER CHIP SUR MT X7R EIA0805	C43 & C44
30	62.4003.0104	6	EA	CAP, 0.1UF 50V 10% CER CHIP SUR MT X7R EIA0805	C25, C26, C36 & C39-C41
31	62.4005.0101	2	EA	CAP, 100PF 50V 10% CER CHIP SUR MT COG 0805	C28 & C29
32	62.4205.0107	1	EA	CAP, 100UF 10V 20% SUR MT	C21
33	62.4206.0105	2	EA	CAP, 1UF 16V 10% TANT CHIP SUR MT EIA-A	C33 & C37
34	62.4209.0224	2	EA	CAP, .22UF 50V 10% TANT CHIP SUR MT	C34 & C38
35	62.4210.0103	2	EA	CAP, .01UF 50V 10% MONO CER CHIP SUR MT	C32 & C35
36	62.4210.0104	1	EA	CAP, .1 UF 50V 10% CER CHIP SUR MT	C42
37	62.4225.0107	2	EA	CAP, 100UF 35V 20% ALUM ELECTRO SUR MT	C30 & C31
38	63.2032.0001	4	EA	VARISTOR, PTC 250V 145MA RADIAL TR250	PTC1-PTC4
39	64.4016.0506	1	EA	CRYSTAL, 16MHZ SUR MT	Y1
40	68.4566.0001	1	EA	INDUCTOR, 173UH PE-53819S LCI-37 SUR MT	L1
41	70.3738.0001	1	EA	FUSE HOLDER, F/FUSE 70.3738.1001	F1
42	70.3742.0002	1	EA	FUSE, POLY 60V MAX 40A MAX IH=.40A IT=.80A @ 20 DEG C	PTC5
43	74.1047.0001	1	EA	SWITCH, KEY SUR MT	S6
44	74.1085.0001	4	EA	SWITCH, 12MM TACT MOM N/O	S1, S2, S4 & S5
45	74.1085.0011	4	EA	CAP, SWITCH 8MM SQ GREY -TL1100160Q	XS1, XS2, XS4 & XS5
46	74.1094.0001	1	EA	SWITCH, MERCURY TILT METAL TYPE	S3
47	75.7105.0805	6	EA	TVS, 6VOLT 0805 SMT	VR2-VR7
48	82.4322.0001	1	EA	DIODE, TVS ZENER 1.5SMC27AT3 27V 40A SMT	D5
49	82.5325.0001	1	EA	DIODE, MBRS130LT3 SCHOTTKY SUR MT	D4
50	82.5326.0001	6	EA	DIODE, DL4148CT RECTIFIER	D6-D11
51	82.5331.0001	4	EA	DIODE, P6KE13CA TVS ZENER 13V	Z1-Z4
52	82.5360.0001	2	EA	DIODE, BAV199LT1 SWITCHING 70V 215MA	D12 & D13
53	83.3173.0005	1	EA	IC, LM2594M-5 150KHZ 0.5A STEP-DOWN VOLTAGE REGULATOR	VR1
54	83.3189.0001	1	EA	IC, OPA2340VA OP AMP SINGLE SUPPLY RAIL TO RAIL	U19

No.	Item	Qty.	UM.	Description	Ref.
55	84.0068.0812	1	EA	IC, MC68HC812A4PV8 (UNPRGMMD) 16BIT MICROCONTROLLER	U14
56	84.4234.0002	3	EA	IC, RS485 TRANSCEIVER SUR MT SOIC PKG	U18, U24 & U25
57	84.4264.0001	1	EA	IC, TC551664AJ 64K X 16 STATIC RAM	U4
58	84.4270.0001	1	EA	IC, NC7S08M5 SINGLE AND GATE SUR MT	U5
59	84.4288.0001	1	EA	IC, MAX6314US44D3-T MICROPROCESSOR RESET CIRCUIT	U15
60	84.4291.0001	1	EA	IC, ST16C550CQ48 UART RCVR/TRSMTTR W/ 16 BYTE FIFO	U2
61	84.4305.0001	1	EA	IC, NC7SZ04M5 UHS INVERTER -SMT	U22
62	84.4306.0001	1	EA	IC, NC7SZ08M5 UHS 2-INPUT AND GATE	U23
63	84.7408.0014	1	EA	IC, 74AC14SC HEX INVERTER W/SCHMITT TRIGGER INPUT 14PIN SOIC	U1
64	84.7411.0007	1	EA	IC, HPR400 DC-DC CONVTR. 5V 3KV ISOLATED	U11
65	84.7426.0001	1	EA	IC, SN74HC04D HEX INVERTER	U17
66	85.5163.0001	1	EA	IC, LS7266R1-S ENCODER TO MICROPROCESSOR INTERFACE CHIP	U6
67	85.5164.0001	2	EA	IC, L6234PD THREE PHASE MOTOR DRIVER	U20 & U21
68	86.6105.0001	3	EA	IC, HCPL-0600 OPTO COUPLER SMD	U9, U10 & U16
69	87.7247.0001	1	EA	IC, AM29F200BT FLASH MEMORY 5V	U13
	87.7302.00XX	1	EA	INSTALLER DISK SET, BURNER VL2000 LUMINAIRES (not shown)	
70	88.8123.0002	1	EA	LED, YEL, HP, 1719	D3
71	88.8123.0003	2	EA	LED, GRN, HP, 1790	D1 & D2
72	88.8139.0002	2	EA	DISPLAY, INTELLIGNET ALPHA NUMERIC 0.54" H-EFF RED	U3 & U7
73	88.8140.0009	3	EA	LED MOUNT, .140" TALL NATURAL NYLON	XD1-XD3

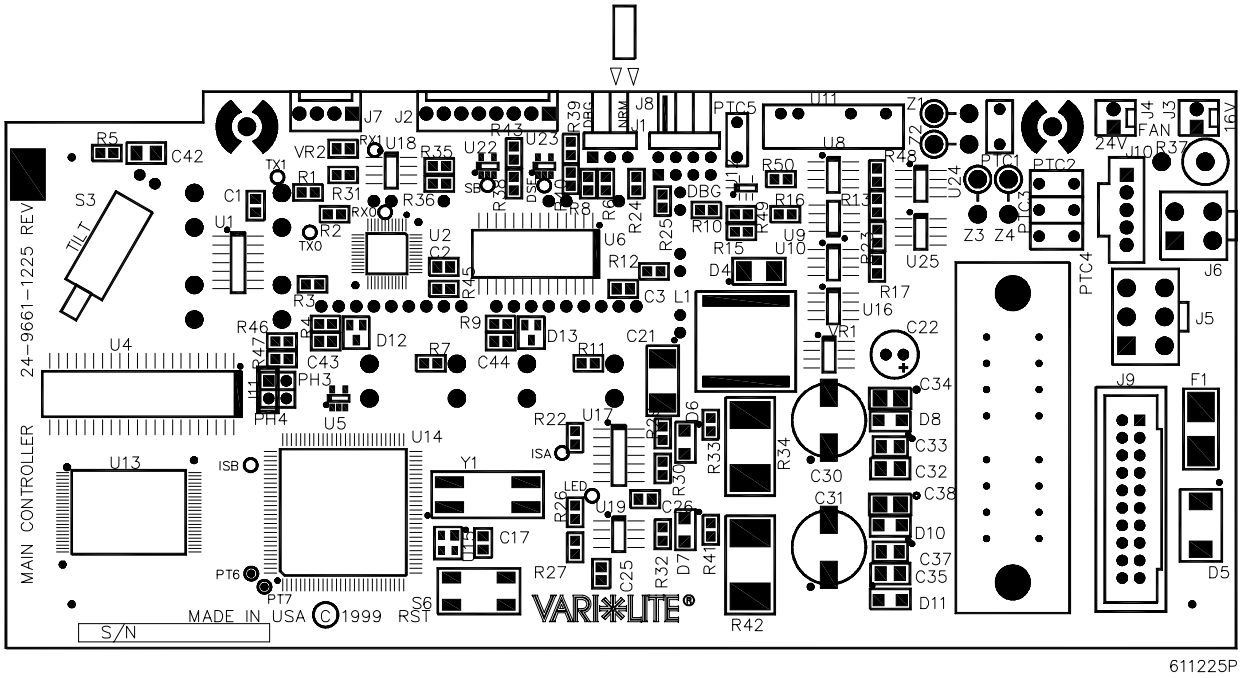


Figure 3-48: Main Controller 3-Phase PCB Assembly

DMX Input PCB Assembly

24.9661.1251 Rev D

Refer to Figure 3-49.

No.	Item	Qty.	UM.	Description	Ref.
1	11.9661.1251	1	EA	PCB, DMX INPUT	
2	52.6525.0005	1	EA	HEADER, 5PIN SGL ROW VERT .1" PITCH SHROUDED	J2
3	52.6585.0005	1	EA	CONN, XLR 5PIN FEMALE PC MOUNT VERTICAL	J3
4	52.6586.0005	1	EA	CONN, XLR 5PIN MALE PC MOUNT VERTICAL	J1
5	62.3017.0102	1	EA	CAP, 1000PF 250V RAD CER DISC 20% Y-TYPE	C1
6	73.7046.0001	2	iN	WIRE, 22AWG STRND GREEN **(not shown)**	

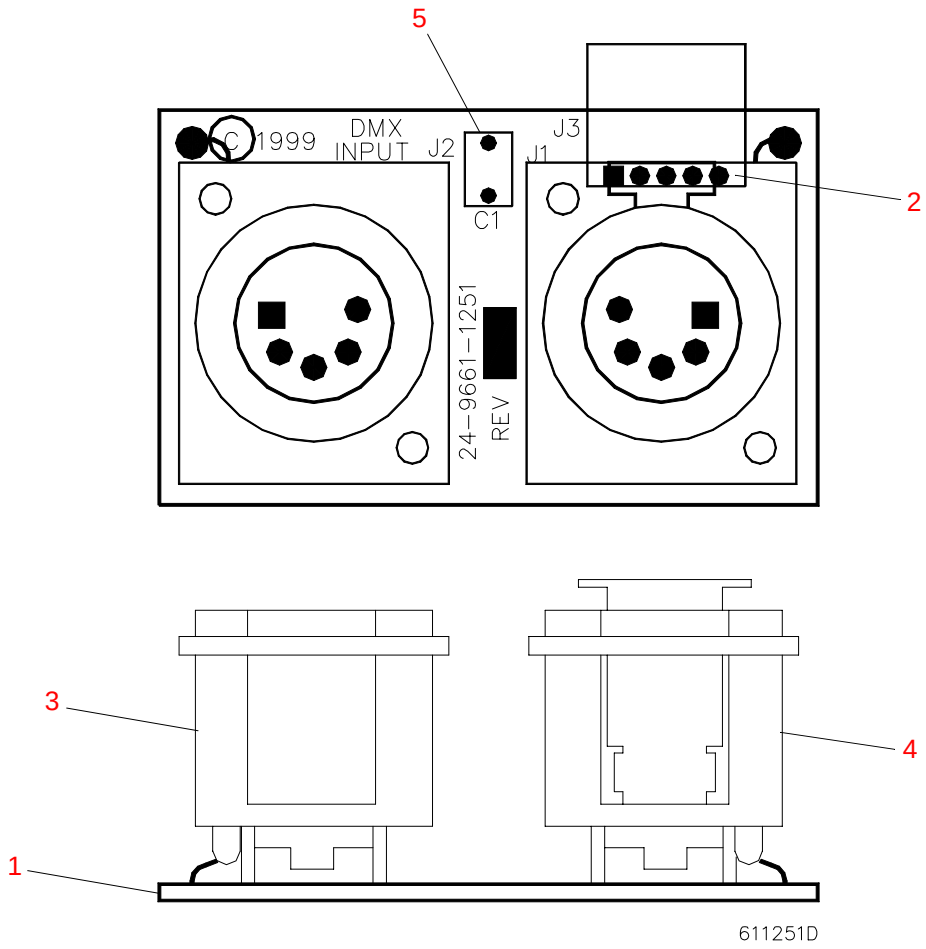


Figure 3-49: DMX Input PCB Assembly

Pan Tube Assembly

21.9661.1208 Rev K

Refer to Figure 3-50.

No.	Item	Qty.	UM.	Description
1	10.9661.1247	1	EA	TOGGLE STOP
2	10.9661.1290	1	EA	PAN TUBE
3	10.9661.1291	1	EA	FLANGE, PAN TUBE
4	21.9661.1207	1	EA	ASSY, PAN SUPPORT PLATE
5	21.9661.1212	1	EA	ASSY, PAN BEARING CUP, FLANGE SIDE
6	22.9661.0601	1	EA	ASSY, PAN/TILT BEARING
7	22.9661.0607	1	EA	ASSY, DRIVEN PULLEY
8	53.6517.0001	4	EA	SCREW, 10-32 X 3/8" PPZ
9	54.1206.0010	1	EA	RING, RETAINING 1.118" GRV DIA .056" GRV WD EXTERNAL
10	55.2123.0005	1	EA	SPRING, WAVE 1.62" OD 1.31" ID CAR STL
11	55.2152.0002	3	EA	SHIM, 1.500" OD 1.200" ID .024" THK SS
12	55.3303.0010	4	EA	WASHER, #10, SPLIT
13	55.6612.0018	1	EA	PIN, GRV .250" OD 1.0" LG STL ZINC PLT
14	55.6677.0027	1	EA	WASHER, 1.75" OD 1.281" ID .015" THK FLAT NYLON

Pan Tube Assembly (cont.)

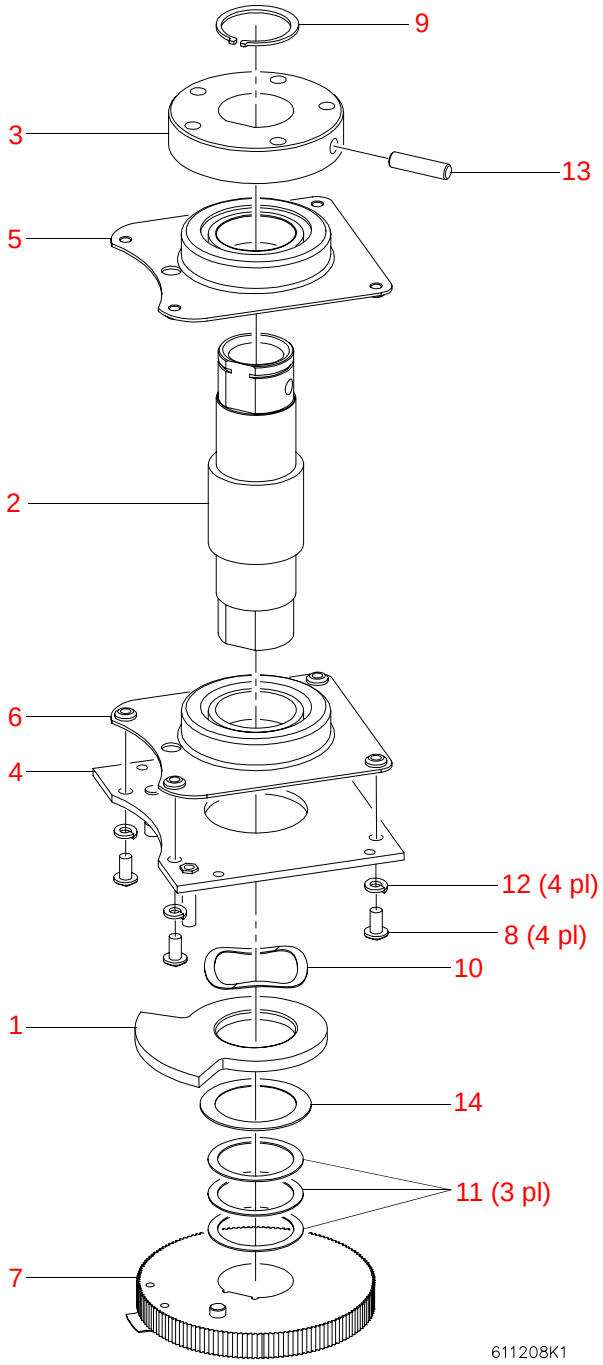


Figure 3-50: Pan Tube Assembly

Pan Motor Assembly

22.9661.0664 Rev E

Refer to Figure 3-51.

No.	Item	Qty.	UM.	Description
1	10.9661.0660	1	EA	PLATE, PAN/TILT -MOTOR MOUNT
2	10.9661.0661	1	EA	BRACKET, EOT SENSOR ADJUSTABLE -PAN
3	22.9661.0608	1	EA	ASSY, DRIVE PULLEY
-	10.9661.0640	1	EA	CODEWHEEL, 90 COUNT
-	10.9661.0649	1	EA	TIMING PULLEY, 2MM GT, 17 TOOTH
-	53.5561.0250	2	EA	SCREW, 6-40 X 1/4" SET CONE POINT
4	23.9661.1253	1	EA	ELEC ASSY, PAN EOT SENSOR
-	52.6524.0006	1	EA	CONN, HOUSING 6-POS RECEPTACLE
-	52.8346.0001	4	EA	CONTACT, 24-30 AWG FEMALE CRIMP
-	86.7002.0003	1	EA	SWITCH, SLOTTED OPTICAL
5	24.9661.0629	1	EA	PCB ASSY, PAN/TILT ENCODER
6	44.5034.0001	1	EA	MOTOR, 4.4 OHM, KT60KM1-002, 3-PHASE 1.2 DEG STEP ANGLE, SINGLE SHAFT
7	53.2200.0006	4	EA	NUT, 6-32 KEPS SS
8	53.2202.0004	2	EA	NUT, 4-40 HEX SS NYLON INSERT
9	53.5506.0875	4	EA	SCREW, 6-32 X 7/8 " PPSS
10	53.6520.0002	2	EA	SCREW, 4-40 X 7/16" PPZ
11	53.6520.0003	2	EA	SCREW, 4-40 X 7/8" PPZ
12	53.6522.0001	2	EA	SCREW, 6-32 X 1/4" PPZ
13	55.3301.0004	2	EA	WASHER, #4 FLAT SS
14	55.6503.0003	4	EA	WASHER, .750" OD #8 SS
15	55.6509.0001	2	EA	WASHER, SHOULDER (HEATSINK)
16	55.6579.0013	4	EA	GROMMET, 3/8" HOLE .25" ID .125" THK YELLOW ISODAMP
17	55.6627.0001	2	EA	WASHER, #6 SPLIT LOCK
18	55.6655.0005	4	EA	SPACER, 1/4" RND .359" LG .141" THRU ALUM

Pan Motor Assembly (cont.)

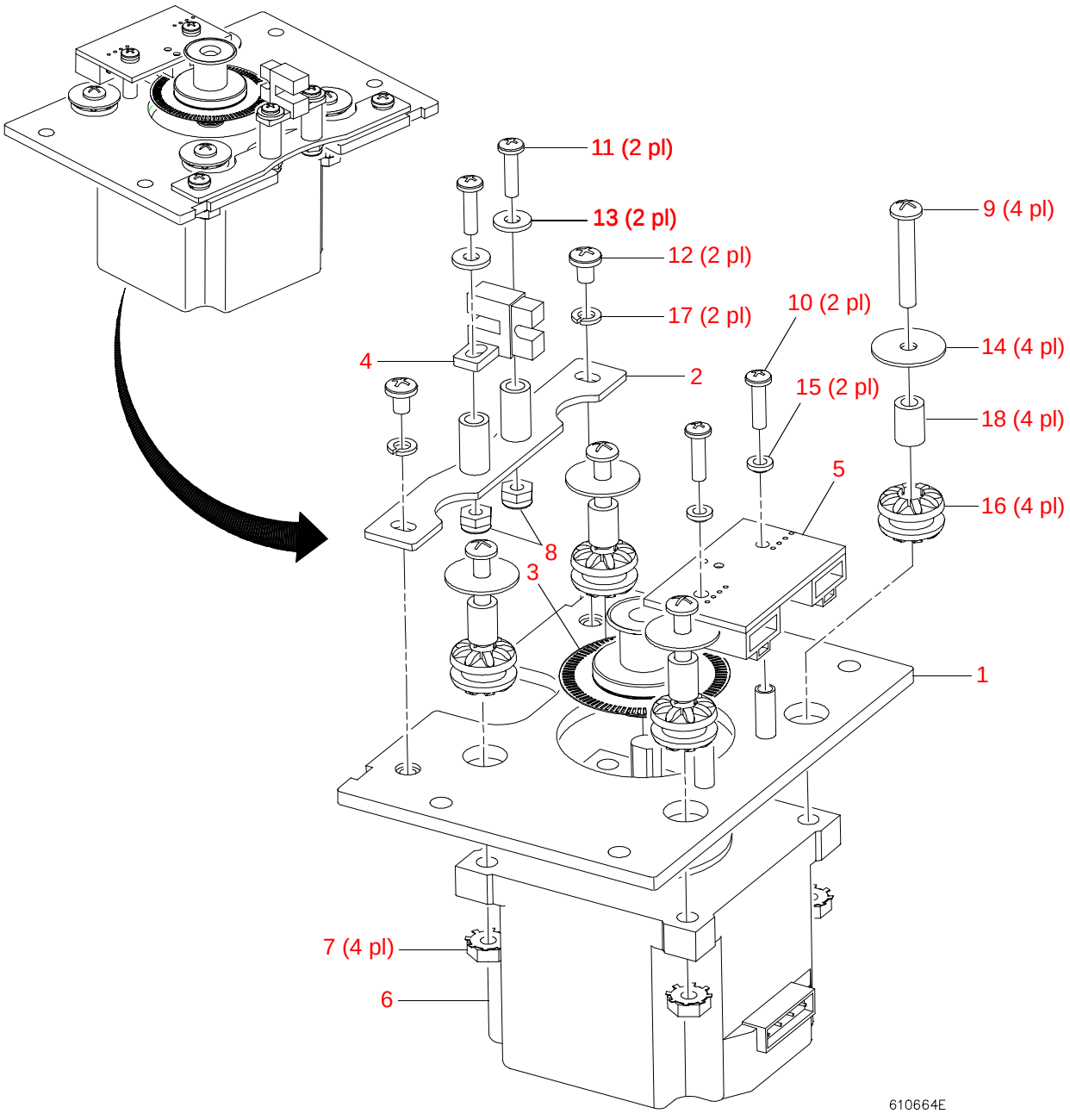


Figure 3-51: Pan Motor Assembly

1200W Source Dimmer Module Assembly

23.9661.1302 (VL2411/VL2412 ONLY) Rev E

Refer to Figure 3-52.

No.	Item	Qty.	UM.	Description
1	10.9661.1311	1	EA	MOUNTING PLATE, SCR DIMMER
2	10.9661.1312	1	EA	AIR DUCT 1, SCR DIMMER ASSEMBLY
3	10.9661.1313	1	EA	AIR DUCT 2, SCR DIMMER ASSEMBLY
4	24.9661.1320	1	EA	PCB ASSY, 1200W SCR DIMMER CONTROL
5	25.9661.1312	1	EA	CABLE ASSY, SSR AC
6	25.9661.1313	1	EA	CABLE ASSY, SSR DC
7	51.5030.0001	1	EA	HEATSINK, SCR DIMMER CRYDOM HE-54
8	53.2200.0008	4	EA	NUT, 8-32 KEPS SS
9	53.6522.0001	5	EA	SCREW, 6-32 X 1/4" PPZ
10	53.6576.0001	2	EA	SCREW, 8-32 X 1/2" PPZ
11	55.2186.0001	3	EA	CABLE TIE, .10" WD 4.00" LG SMALL
12	55.6503.0004	2	EA	WASHER, #8 FLAT ZINC
13	55.6578.0002	5	EA	STANDOFF, 5/16" HEX 6-32 1.328" LG FF ALUM
14	66.0240.0055	1	EA	RELAY, SSR 55A 240VAC RANDOM CROSS

1200W Source Dimmer Module Assembly (cont.)

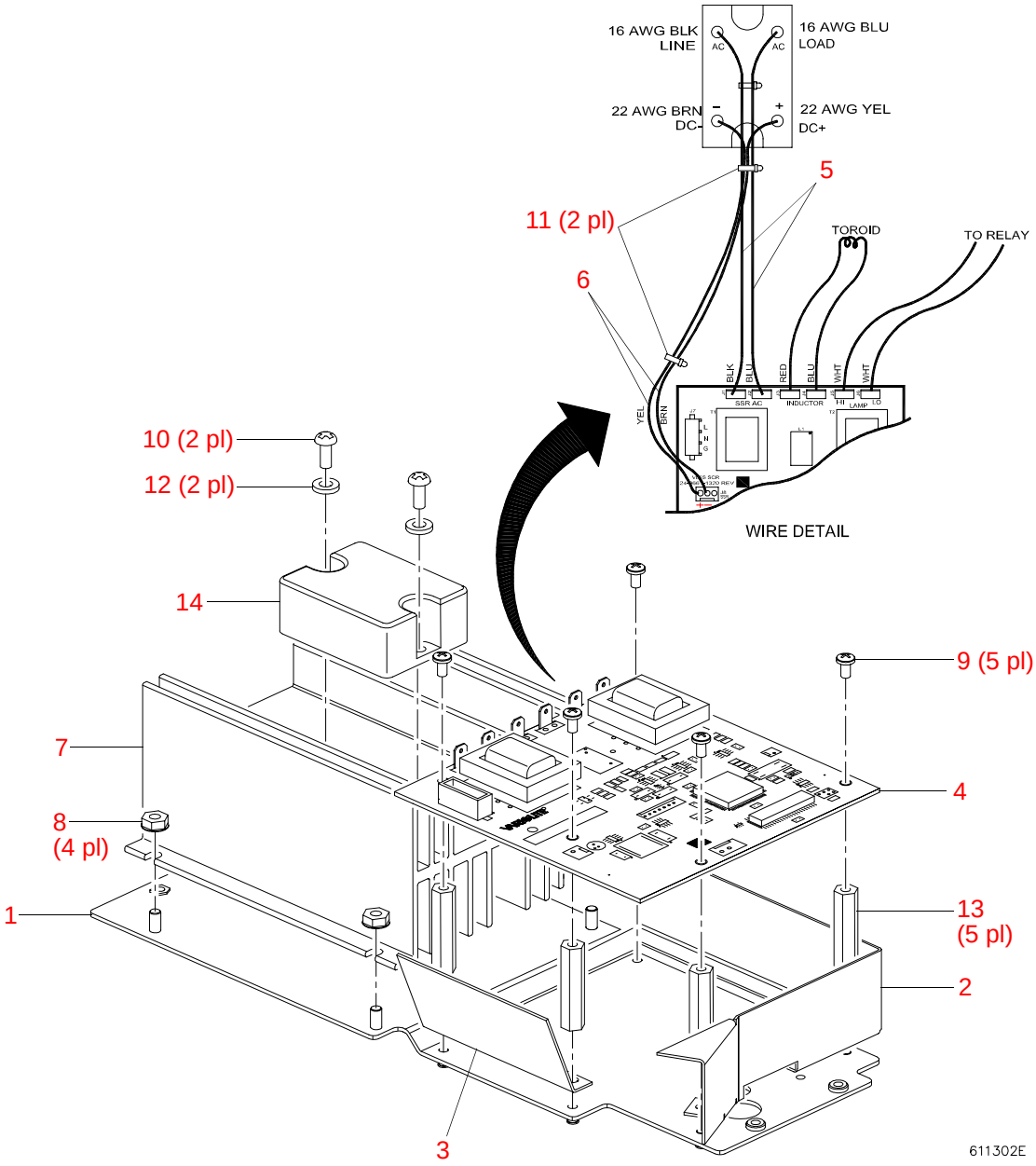


Figure 3-52: 1200W Source Dimmer Module Assembly

1200W Source Dimmer Control PCB Assembly

24.9661.1320 (VL2411/VL2412 ONLY) Rev D

Refer to Figure 3-53.

No.	Item	Qty.	UM.	Description	Ref.
1	11.9661.1320	1	EA	PCB, SCR	
2	52.6259.0003	1	EA	HEADER, 3POS MTA156 STRT FRCT LOK	J8
3	52.6261.0002	1	EA	HEADER, 2PIN MTA156	J10
4	52.6296.0001	1	EA	HEADER, 8POS MTA FRCT LOK STRT POST	J9
5	52.6370.0003	1	EA	HEADER ASSY, 3CIR SOCKET MNLOK FMLE	J7
6	52.6399.0001	1	EA	JUMPER, PROGRAMMING	XJ12
7	52.8252.0001	6	EA	TERM, .250" TAB PC QUICK-FIT BRASS	J1-J6
8	52.8335.0003	1	EA	HEADER, 3PIN SGL ROW .1CTR TH UNSHROUD	J12
9	52.8336.0008	2	EA	HEADER, 8POS DBL ROW .1CTR VERTICAL	J13-J14
10	60.4500.4703	2	EA	RES, .1W 5% 4.7 K CHIP THK FLM SMT	R14, R15
11	60.9460.1003	2	EA	RES, .1W 5% 1.0 K 100V CHIP THICK FILM SMT0805	R29, R31
12	60.9460.1004	10	EA	RES, .1W 5% 10.0 K 100V CHIP THICK FILM	R18-R22, R25-R28, R30
13	60.9460.3303	1	EA	RES, .1W 5% 3.3 K 100V CHIP THICK FILM	R23
14	60.9460.7505	1	EA	RES, .1W 5% 750.0 K 100V CHIP THICK FILM	R24
15	60.9461.1003	4	EA	RES, .1W 1% 1.0 K 100V CHIP THK FLM SMT0805	R3, R5, R6, R17
16	60.9461.1004	1	EA	RES, .1W 1% 10.0 K 100V CHIP THK FLM SMT0805	R11
17	60.9461.2004	4	EA	RES, .1W 1% 20.0 K 100V CHIP THK FILM	R8, R9, R10, R12
18	60.9461.4324	1	EA	RES, .1W 1% 43.2 K 100V CHIP THK FLM SMT0805	R7
19	60.9461.4993	2	EA	RES, .1W 1% 4.99 K 100V CHIP THK FLM	R1, R13
20	60.9461.5111	1	EA	RES, .1W 1% 51.1 OHM 100V CHIP THK FLIM	R4
21	60.9461.6654	2	EA	RES, .1W 1% 66.5 K 100V CHIP THK FLM SMT0805	R2, R16
22	62.2104.3826	1	EA	CAP, 82UF 35V RAD ALUM 6.3 X 15MM 20% LOW ESR	C2
23	62.4000.0105	14	EA	CAP, .1UF 50V 20% CER CHIP SUR MT Z5U EIA0805	C3, C4, C6, C8, C10-C19
24	62.4000.0200	2	EA	CAP, 20PF 50V 5% CER CHIP SUR MT COG EIA0805	C20, C21
25	62.4205.0107	1	EA	CAP, 100UF 10V 20% SUR MT	C1
26	62.4207.0106	3	EA	CAP, 10UF 25V 10% TANT CHIP SUR MT EIA7343	C5, C7, C9
27	64.4016.0506	1	EA	CRYSTAL, 16MHZ SUR MT	Y1
28	68.4528.0055	2	EA	TRANSFORMER, 275V 55V 2.5VA SCR DIMMER	T1, T2

No.	Item	Qty.	UM.	Description	Ref.
29	68.4566.0001	1	EA	INDUCTOR, 173UH PE-53819S LCI-37 SUR MT	L2
30	68.7101.0010	1	EA	COIL, CURRENT SENSE 10A 50/60HZ	L1
31	73.3516.0009	0.17	FT	WIRE, 16AWG 300V 105C PVC WHT UL1569	
32	80.2645.0001	1	EA	TRANSISTOR, MMBT2907ALT1 PNP SUR MT GENERAL PURPOSE	Q1
33	82.4329.0001	2	EA	BRIDGE RECTIFIER, MB6S SGL PH SUR MT	BR1, BR2
34	82.5325.0001	1	EA	DIODE, MBRS130LT3 SCHOTTKY SUR MT	D4
35	82.5326.0001	3	EA	DIODE, DL4148CT RECTIFIER	D1-D3
36	83.3163.0001	1	EA	IC, MC34164D-5 SENSING CIRCUIT UNDERVOLTAGE SURFACE MOUNT	U11
37	83.3173.0005	1	EA	IC, LM2594M-5 150KHZ 0.5A STEP-DOWN VOLTAGE REGULATOR	VR1
38	83.3189.0001	3	EA	IC, OPA2340VA OP AMP SINGLE SUPPLY RAIL TO RAIL	U2, U7, U8
39	84.0068.0812	1	EA	IC, MC68HC812A4PV8 (UNPRGMMD) 16BIT MICROCONTROLLER	U9
40	84.4234.0002	1	EA	IC, RS485 TRANSCEIVER SUR MT SOIC PKG	U1
41	84.4264.0001	1	EA	IC, TC551664AJ 64K X 16 STATIC RAM	U5
42	84.4270.0001	1	EA	IC, NC7S08M5 SINGLE AND GATE SUR MT	U10
43	84.4285.0001	1	EA	IC, NC7S04M5 HS INVERTER	U6
44	85.5133.0001	1	EA	IC, MAX828EUK SWTED-CAP VOLTAGE INVERTER	U3
45	87.7247.0001	1	EA	IC, AM29F200BT FLASH MEMORY 5V	U4
46	88.8130.0001	1	EA	LED, GREEN SUR MT WATER CLEAR LENS (REEL)	D5

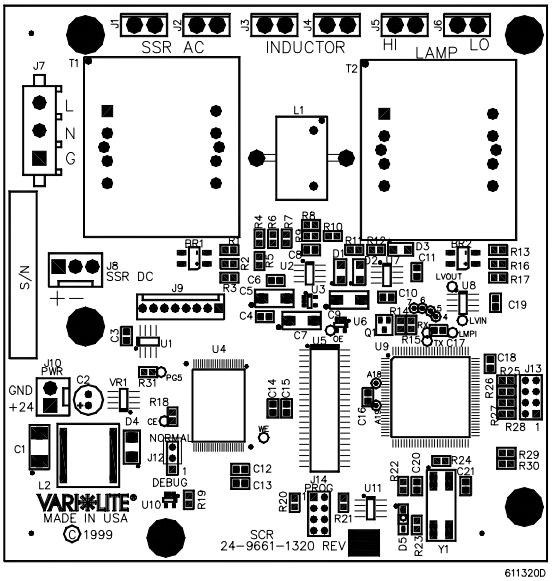


Figure 3-53: 1200W Source Dimmer Control PCB Assembly

625W Arc Ballast Module Assembly

23.9661.1279 (VL2413/VL2414 ONLY) Rev K

Refer to Figures 3-54 and 3-55.

No.	Item	Qty.	UM.	Description
1	06.6032.0009	1	EA	CABLE MARKER TIE, WHITE 19 X 7.4"
2	10.9661.1260	1	EA	HEAT SINK, LEFT 1200 WATT POWER SUPPLY
3	10.9661.1261	1	EA	HEAT SINK, RIGHT 1200 WATT POWER SUPPLY
4	10.9661.1262	1	EA	TOP, AIR DUCT 1200 WATT POWER SUPPLY
5	10.9661.1274	1	EA	INSULATOR, ELECTRICAL, TO-247
6	10.9661.1353	1	EA	CHANNEL, AIR APS
7	24.9661.1120	1	EA	PCB ASSY, 400/625W BALLAST BOARD
8	24.9661.1121	1	EA	PCB ASSY, 400/625W BALLAST RIDER BOARD
9	51.5006.0004	3	EA	INSULATOR, TO-220 ALUMINUIM OXIDE (4171)
10	51.5029.0001	7	EA	INSULATOR, TO-247 ALUMINUM OXIDE
11	52.6580.1002	1	EA	JUMPER, 2POS .100" CTR CLSD END 10UGOLD BLACK
12	53.6520.0002	6	EA	SCREW, 4-40 X 7/16" PPZ
13	53.6522.0001	5	EA	SCREW, 6-32 X 1/4" PPZ
14	53.6530.0007	2	EA	RIVET, 1/8" OD POP .063-.125GRP RG .265LG CSKH-AL5052
15	53.6609.0001	4	EA	SCREW, 6-32 X 3/8" PFZ
16	53.6616.0001	8	EA	SCREW, 6-32 X 3/4" PPZ
17	55.2178.0001	1	EA	CABLE ANCHOR MOUNT, #8 SCREW MOUNTING
18	55.6509.0001	3	EA	WASHER, SHOULDER (HEATSINK)
19	55.6528.0001	8	EA	WASHER, #6 FLAT ZINC
20	55.6537.0001	3	EA	WASHER, #4 LOCK INTERNAL TOOTH
21	55.6538.0001	1	EA	WASHER, #6 LOCK INTERNAL TOOTH
22	55.6621.0001	3	EA	WASHER, #4 FLAT ZINC
23	55.6658.0009	1	EA	STANDOFF, 1/4" HEX 6-32 .750" LG MF SS
24	55.6695.0001	0.23	ft	HEATSHRINK, 1/2" ADHESIVE WALL
25	55.6736.2500	0.11	FT	TUBING, TEFLON .053ID STD WALL 500V/MIL, FOR AWG #16
26	60.9244.0501	1	EA	RES, 30W 5% .05 OHM TO-220 POWER FILM
27	60.9245.0100	1	EA	RES, 30W 1% 0.1 OHM TO-220 POWER FILM
28	63.2047.0085	1	EA	THERMOSTAT, 85DEG C PCB MT CLOSE ON RISE
29	63.2047.0105	2	EA	THERMOSTAT, 105DEG C PCB MOUNT CLOSE ON RISE
30	67.4018.0001	2	EA	FERRITE, 26 X 28.5 X 13MM, CYLINDRICAL CORE
31	73.7051.0001	1	FT	WIRE, 22AWG BUSS

No.	Item	Qty.	UM.	Description
32	80.2628.0001	4	EA	TRANSISTOR, IXGH39N60BD1 IGBT 76A 600V
33	80.2647.0001	1	EA	TRANSISTOR, IXGH32N60C IGBT 32A 600V
34	80.2648.0001	1	EA	TRANSISTOR, IXFH32N50 POWER MOSFET 500V 32A TO-247
35	82.4323.0001	1	EA	DIODE, BRIDGE D25XB60 600V 25A SIP
36	82.5341.0001	2	EA	DIODE, DSEI30-06A FRED 25-37A T0-247 AD

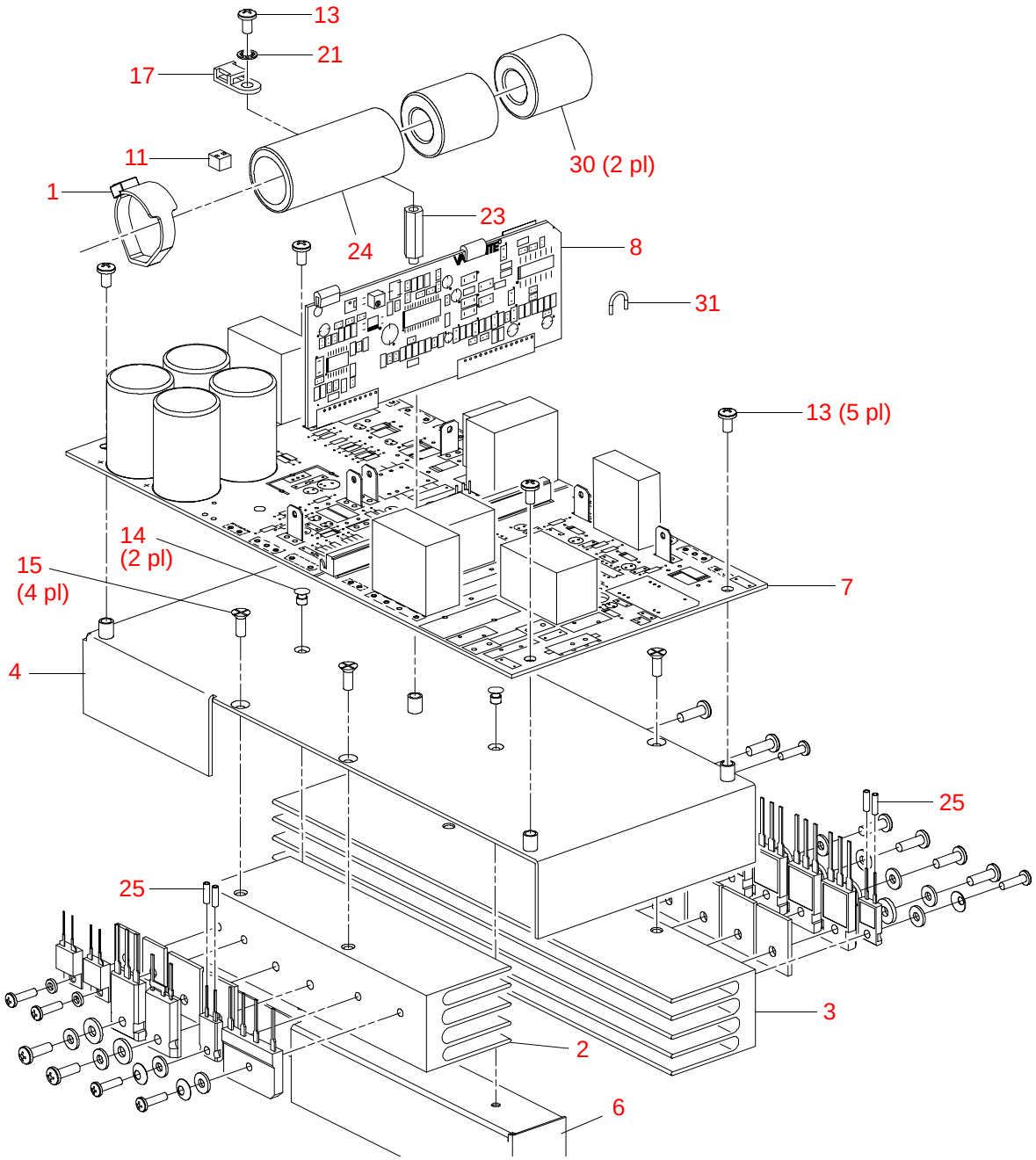


Figure 3-54: 625W Arc Ballast Module Assembly

625W Arc Ballast Module Assembly (cont.)

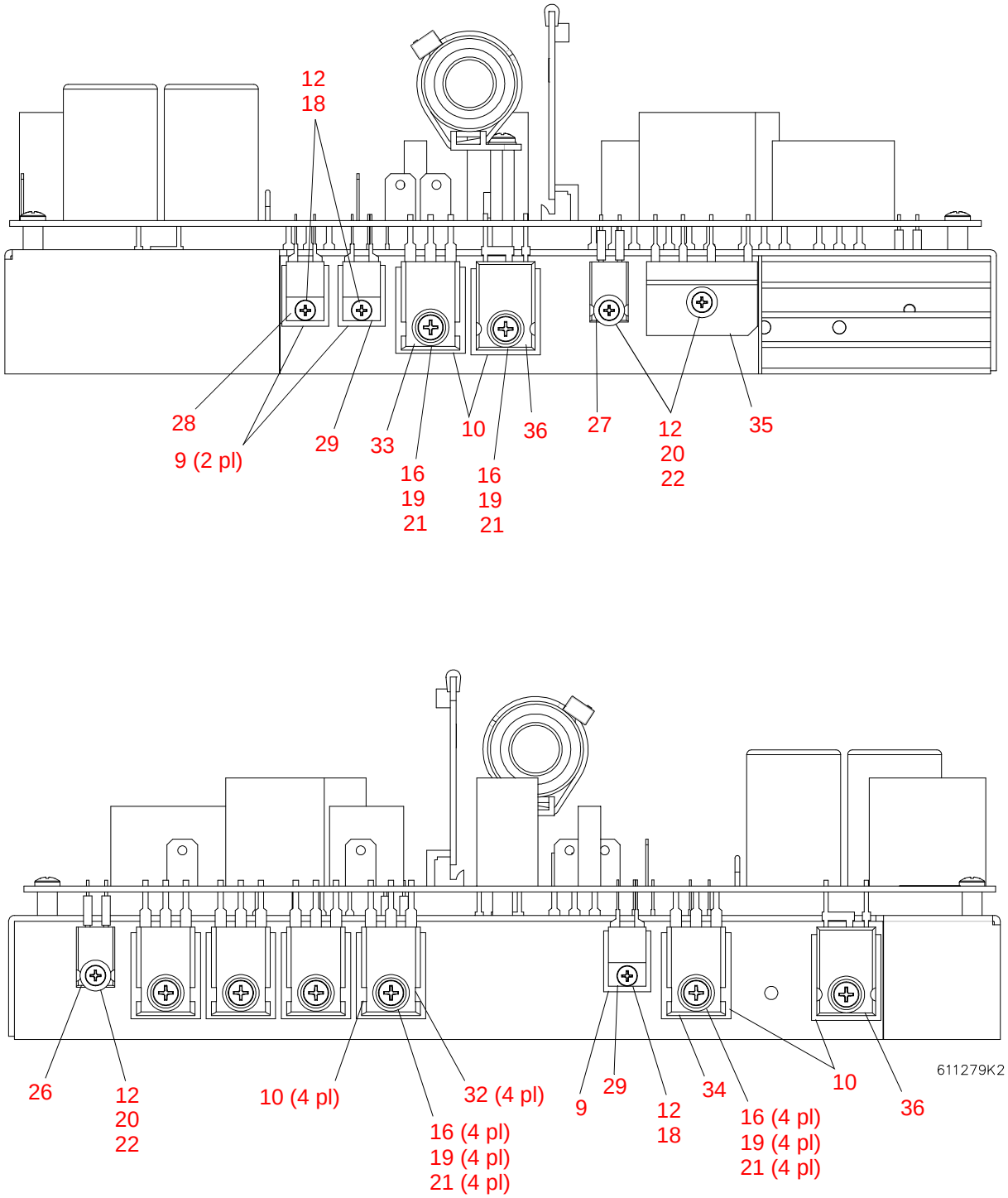


Figure 3-55: 625W Arc Ballast Module Assembly (side views)

400/625W Ballast Board PCB Assembly

24.9661.1120 (VL2413/VL2414 ONLY) Rev H

Refer to Figure 3-56.

No.	Item	Qty.	UM	Description	Ref.
1	10.9661.1356	1	EA	GUIDE, APS RIDER PCB	
2	11.9661.1120	1	EA	PCB, 400/625W BALLAST BOARD	
3	51.5031.0001	1	EA	HEATSINK, TO-220 CLIP-ON ALUM BLACK ANODIZED PC MT	
4	52.6229.0001	1	EA	HEADER, 3POS MTA FRIC LOK STRT POST	J113
5	52.6261.0002	1	EA	HEADER, 2PIN MTA156	J102
6	52.6296.0001	1	EA	HEADER, 8POS MTA FRCT LOK STRT POST	J112
7	52.6370.0003	1	EA	HEADER ASSY, 3CIR SOCKET MNLOK FMLE	J103
8	52.6574.0012	1	EA	HEADER, 12CIR VERTICAL KK STYLE	J101
9	52.6574.0015	1	EA	HEADER, 15CIR VERTICAL KK STYLE	J201
10	52.6580.0003	1	EA	HEADER, 3PIN SGL RW STRGHT 10U GOLD .025" SQ	J206
11	52.8252.0001	8	EA	TERM, .250" TAB PC QUICK-FIT BRASS	J108-J111, J202-J205
12	52.8283.5202	1	EA	TEST POINT, PCB MT .052" HOLE RED GLASS BEAD	J106
13	52.8283.5210	1	EA	TEST POINT, PCB MT .052" HOLE BLK GLASS BEAD	J107
14	60.1230.1004	1	EA	RES, 1/4W 1% 10.0 K MF	R225
15	60.1230.1214	1	EA	RES, 1/4W 1% 12.1 K MF	R203
16	60.1230.4755	4	EA	RES, 1/4W 1% 475.0 K MF	R112, R113, R202, R218
17	60.1230.7153	1	EA	RES, 1/4W 1% 7.15 K MF	R222
18	60.1230.8255	1	EA	RES, 1/4W 1% 825.0 K MF	R210
19	60.1231.5623	1	EA	RES, 1/4W 1% 5.62 K MF	R211
20	60.1231.6983	1	EA	RES, 1/4W 1% 6.98 K MF	R114
21	60.1420.2001	1	EA	RES, 1/4W 5% 20.0 OHM CF	R117
22	60.1420.3002	1	EA	RES, 1/4W 5% 300.0 OHM CF	R107
23	60.1420.4302	2	EA	RES, 1/4W 5% 430.0 OHM CF	R216, R224
24	60.1420.5101	4	EA	RES, 1/4W 5% 51.0 OHM CF	R212-R215
25	60.1420.5105	2	EA	RES, 1/4W 5% 510.0 K CF	R110, R111
26	60.1420.7505	2	EA	RES, 1/4W 5% 750.0 K CF	R105, R106
27	60.1421.1201	1	EA	RES, 1/4W 5% 12.0 OHM CF	R206
28	60.1421.3301	1	EA	RES, 1/4W 5% 33.0 OHM CF	R109
29	60.1421.5100	1	EA	RES, 1/4W 5% 5.1 OHM CF	R208

No.	Item	Qty.	UM	Description	Ref.
30	60.1421.6805	1	EA	RES, 1/4W 5% 680.0 K CF	R102
31	60.1422.1001	3	EA	RES, 1/4W 5% 1.0 K CF	R219, R220, R222, R223
32	60.1422.2001	1	EA	RES, 1/4W 5% 2.0 K CF	R119
33	60.1424.1502	1	EA	RES, 1/4W 5% 15.0 K CF	R104
34	60.1424.2004	1	EA	RES, 1/4W 5% 20.0 K CF	R108
35	60.1424.2702	2	EA	RES, 1/4W 5% 27.0 K CF	
36	60.1426.1003	2	EA	RES, 1/4W 5% 100.0 K CF	R226, R227
37	60.1431.1007	1	EA	RES, 1/4W 5% 10.0 OHM	R217
38	60.3432.2004	2	EA	RES, 2W 5% 20.0 K MET OXIDE	R115, R116
39	60.7440.1002	1	EA	RES, 5W 5% 100.0 OHM WW	R209
40	62.2110.0474	1	EA	CAP, .47UF 250V RAD METALLIZED POLYEST 15MM L.S. 10%	C219
41	62.2112.0337	4	EA	CAP, 330 UF 250V RAD ALUM 25MM X 30MM	C110-C113
42	62.2114.0107	1	EA	CAP, 100UF 50V RAD ALUM 10MM X 15MM 20%	C114
43	62.3007.0474	2	EA	CAP, .47UF 275VAC RAD SUPPRESSOR 10%	C101, C102
44	62.3013.0105	2	EA	CAP, 1UF 630V RAD MET PLYPLN 10%	C201, C204
45	62.3013.0474	1	EA	CAP, .47UF 630V RAD MET PLYPLN 10%	C105
46	62.3017.0102	4	EA	CAP, 1000PF 250V RAD CER DISC 20% Y-TYPE	C103, C104, C117, C118
47	62.3017.0472	1	EA	CAP, 4700PF 250V RAD CER DISC Y-CLASS	C223
48	62.3021.2331	1	EA	CAP, 330PF 200V RAD CER 20% X7R	C203
49	62.3023.0104	12	EA	CAP, .1UF 50V RAD CER 20% Z5U	C109, C115, C120, C206, C209, C211, C214, C218, C220, C222, C225-C227
50	62.3023.0333	1	EA	CAP, .33UF 50V RAD CER 20% Z5U	C106
51	62.3023.0473	3	EA	CAP, .47UF 50V RAD CER 20% Z5U	C107, C210, C215
52	62.3027.0102	1	EA	CAP, 1000PF 1600V RAD POLYPROPYLENE .600" 10%	
53	62.3029.0333	1	EA	CAP, .033UF 1000V RAD POLYPROPYLENE .886" 10%	C216
54	62.4010.0106	1	EA	CAP, 10UF 50V RAD ALUM 4 X 11 MM 20%	C221
55	62.4010.0475	8	EA	CAP, 4.7UF 50V RAD ALUM 5 X 11 MM 20%	
56	63.2048.0001	2	EA	THERMISTOR, 10A 2.5 OHM NTC CURRENT LIMIT	NTC101, NTC102
57	63.2050.0001	1	EA	VARISTOR, METAL OXIDE 300V RMS 165J 775V CLAMP	VR101
58	68.4536.0002	1	EA	CHOKE, COMMON MODE FILTER 1.35MH 11A	L102
59	68.4577.0001	1	EA	INDUCTOR, CURRENT SENSE PE-51688	L201
60	68.9661.1112	1	EA	TRANSFORMER, GATE DRIVE	T201

No.	Item	Qty.	UM	Description	Ref.
61	68.9661.1115	1	EA	CHOKE, EMI DIFFERENTIAL	L101
62	70.3727.0002	2	EA	FUSE CLIP, 1/4" PC BOARD TINNED BRASS	F101
63	70.3762.0020	1	EA	FUSE, 20A 250VAC VERY FAST ACT 1/4" X 1 1/4" CERAMIC	F101
64	73.6016.0006	0.25	FT	WIRE, 16AWG 600V 105C PVC BLU UL1015	
65	80.2623.0001	2	EA	TRANSISTOR, 2N4401 NPN 40V 600MA	Q102, Q203
66	80.2623.0003	3	EA	TRANSISTOR, 2N4403 PNP 40V 600MA TO-92	Q103, Q204, Q211
67	80.2643.0001	1	EA	TRANSISTOR, MPSW63 1W PNP DARLINGTON 30V 500MA 1W TO-92	Q205
68	82.4308.4937	4	EA	DIODE, 1N4937 FAST 600V 1A	D206-D209
69	82.4317.5819	1	EA	DIODE, 1N5819 RECTIFIER 40V 1A	D212
70	82.5318.0160	1	EA	DIODE, MUR160, 600V, 1A	D104
71	82.5322.0001	1	EA	DIODE, 1N4736A	D215
72	82.5323.0001	2	EA	DIODE, MUR460 600V 4AMP ULTRAFAST	D202, D205
73	82.5340.0001	4	EA	DIODE, ZENER 1.5KE250A TVS 250V 1500W	D203, D204, D213, D214
74	82.5349.0001	1	EA	DIODE, MBR1100 SCHOTTKY 1A 100V AXIAL LEAD RECTIFIER	D103
75	82.5351.0001	1	EA	DIODE, ZENER 20V 1W 5% D041 IN4747A	D102
76	83.3188.0001	1	EA	IC, LM317AT 3-TERM ADJUSTABLE REGULATOR	VR102
77	84.7427.0001	1	EA	IC, WPCO3R24S15L DC-DC CONVERTER 3W	U203
78	85.5120.0001	2	EA	IC, IR2110, 1/2 BRIDGE DRIVER	U201, U202
79	86.6109.0001	1	EA	IC, OPTO COUPLER DUAL CHANNEL 8PIN DIP	U204

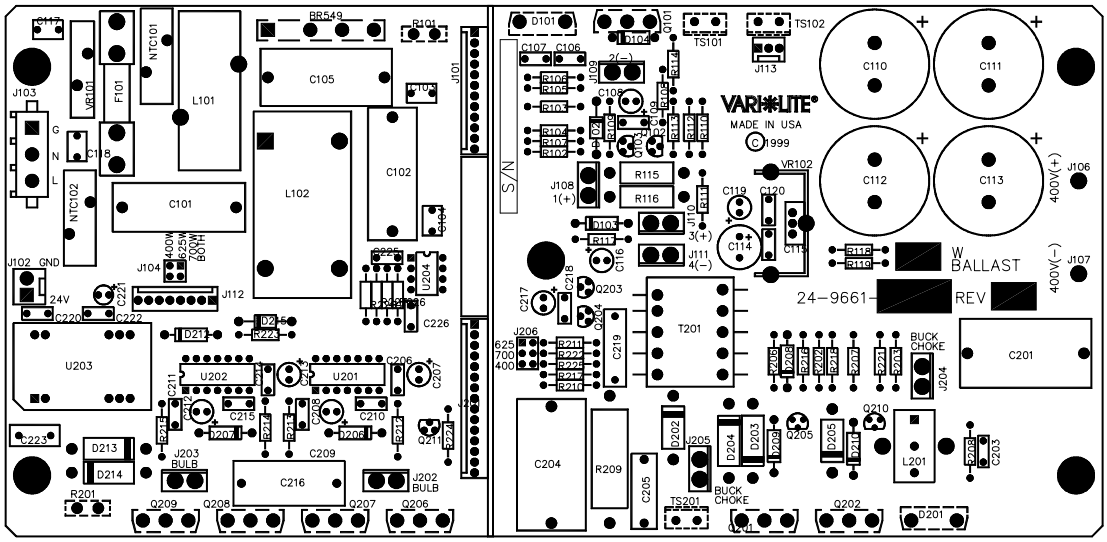


Figure 3-56: 400/625W Ballast Board PCB Assembly

400/625W Ballast Rider Board PCB Assembly

24.9661.1121 (VL2413/VL2414 ONLY) Rev E

Refer to Figure 3-57.

No.	Item	Qty.	UM.	Description	Ref.
1	10.9661.1355	2	EA	STABILIZING EXTRUSION, APS RIDER BD PCB	
2	11.9661.1111	1	EA	PCB, BALLAST RIDER	
3	50.4002.0014	1	EA	SOCKET, 14 PIN DIP GULL WING SUR MT OPEN FRAME	XU402
4	52.6297.0001	1	EA	HEADER, 2PIN MTA FRCT LOK STRT POST	J402
5	52.6576.0012	1	EA	CONN, 12 CIR .100" PC BOARD	J301
6	52.6576.0015	1	EA	CONN, 15 CIR .100" PC BOARD	J401
7	60.0460.1004	1	EA	RES, 1/8W 5% 10.0 K THK FLM CHIP SUR MT EIA-1206	R401
8	60.9462.1003	2	EA	RES, 1/2W 5% 1.0 K 200V CHIP THK FLM SMT2010	R405, R432
9	60.9463.0000	1	EA	RES, 1/8W ZERO OHM 200V CHP THK FLM S-MT1206	R433
10	60.9463.1004	1	EA	RES, 1/8W 1% 10.O K 200V CHP THK FLM S-MT1206	R306
11	60.9463.1005	1	EA	RES, 1/8W 1% 100.0 K 200V CHP THK FLM S-MT1206	R408
12	60.9463.1215	1	EA	RES, 1/8W 1% 121.0 K 200V CHP THK FLM S-MT1206	R407
13	60.9463.1474	2	EA	RES, 1/8W 1% 14.7 K 200V CHP THK FLM SMT1206	R301, R304
14	60.9463.1624	1	EA	RES, 1/8W 1% 16.2 K 200V CHP THK FLM S-MT1206	R412
15	60.9463.2004	2	EA	RES, 1/8W 1% 20.0 K 200V CHP THK FLM S-MT1206	R308, R309, R402, R417, R418, R424-R426, R428
16	60.9463.2613	1	EA	RES, 1/8W 1% 2.61 K 200V CHP THK FLM SMT1206	R303
17	60.9463.6193	1	EA	RES, 1/8W 1% 6.19 K 200V CHP THK FLM S-MT1206	R411
18	60.9463.9313	1	EA	RES, 1/8W 1% 9.31 K 200V CHP THK FLM S-MT1206	R420
19	60.9463.9315	1	EA	RES, 1/8W 1% 931.0 K 200V CHP THK FLM S-MT1206	R427
20	60.9464.1003	1	EA	RES, 1/8W 5% 1.0 K 200V CHP THK FLM S-MT1206	R406
21	60.9464.2003	1	EA	RES, 1/8W 5% 2.0 K 200V CHP THK FLM S-MT1206	R413
22	60.9464.2004	9	EA	RES, 1/8W 5% 20.0 K 200V CHP THK FLM S-MT1206	R307, R419
23	60.9464.2005	1	EA	RES, 1/8W 5% 200.0 K 200V CHP THK FLM S-MT1206	R422
24	60.9464.2703	1	EA	RES, 1/8W 5% 2.7 K 200V CHP THK FLM S-MT1206	R416
25	60.9464.3002	2	EA	RES, 1/8W 5% 300.0 OHM 200V CHP THK FLM S-MT1206	R403, R404
26	60.9464.3005	1	EA	RES, 1/8W 5% 300.0 K 200V CHP THK FLM S-MT1206	R429
27	60.9464.4703	2	EA	RES, 1/8W 5% 4.7 K 200V CHP THK FLM S-MT1206	R430, R431
28	60.9464.4704	1	EA	RES, 1/8W 5% 47.0 K 200V CHP THK FLM S-MT1206	R423
29	60.9464.6804	1	EA	RES, 1/8W 5% 68.0 K 200V CHP THK FLM S-MT1206	R302

No.	Item	Qty.	UM.	Description	Ref.
30	60.9464.7505	1	EA	RES, 1/8W 5% 750.0 K 200V CHP THK FLM S-MT1206	R421
31	60.9464.8204	1	EA	RES, 1/8W 5% 82.0 K 200V CHP THK FLM S-MT1206	R305
32	62.3009.0473	1	EA	CAP, .047UF 50V 10% MONO CER CHIP SUR MT	C417
33	62.3021.2101	1	EA	CAP, 100PF 200V RAD CER 10% COG	
34	62.4000.0102	1	EA	CAP, 1000PF 50V 5% CER CHIP MONO COG	C309
35	62.4000.0105	14	EA	CAP, .1UF 50V 20% CER CHIP SUR MT Z5U EIA0805	C305-C307, C310, C312, C404, C407, C408, C419, C421, C422, C423, C426, C427
36	62.4000.0331	1	EA	CAP, 330PF 50V 5% CER CHIP SUR MT COG EIA0805	C413
37	62.4003.0102	3	EA	CAP, 1000PF 50V 10% CER CHIP SUR MT X7R EIA0805	C416, C418, C425
38	62.4003.0221	1	EA	CAP, 220PF 50V 10% CER CHIP SUR MT X7R 0805	C302
39	62.4003.0331	1	EA	CAP, 330PF 50V 10% CER CHIP SUR MT X7R 0805	C313
40	62.4004.0221	1	EA	CAP, 220PF 50V 20% CER CHIP SUR MT X7R EIA0805	C403
41	62.4004.0222	1	EA	CAP, 2200PF 50V 20% CER CHIP SUR MT X7R EIA0805	C415
42	62.4005.0101	3	EA	CAP, 100PF 50V 10% CER CHIP SUR MT COG 0805	C410, C411, C429
43	62.4005.0220	1	EA	CAP, 22PF 50V 10% CER CHIP SUR MT COG 0805	C301
44	62.4005.0330	1	EA	CAP, 33PF 50V 10% CER CHIP SUR MT COG 0805	C428
45	62.4006.0222	1	EA	CAP, 2200PF 50V 5% CER CHIP SUR MT X7R 0805	
46	62.4007.0474	2	EA	CAP, .47UF 50V 20% CER CHIP SUR MT Z5U 1210	C304, C402
47	62.4221.0105	1	EA	CAP, 1UF 50V 20% ALUM ELECTRO SUR MT	C413
48	62.4223.0475	5	EA	CAP, 4.7UF 50V ALUM ELECTRO SUR MT LOW ESR	C308, C405, C406, C420, C424
49	62.4224.0107	1	EA	CAP, 100UF 35V 20% AL ELEC 8MM DIA 105C S-MT	C409
50	63.2049.0002	1	EA	POT, 1K OHM 1/4W 10% MULTI-TURN SMT	R410
51	82.4327.0001	2	EA	DIODE, 1N5819M RECTIFIER GLASS MELF	D301, D403
52	82.5344.0001	1	EA	DIODE, GLL4740A ZENER	D401
53	82.5345.0001	1	EA	DIODE, GLL4736A ZENER	D402
54	82.5346.0001	6	EA	DIODE, LL4148 SMALL SIGNAL	D404-D409
55	83.3181.0001	1	EA	IC, MC3405P DUAL OP-AMP/DUAL COMPARATOR 14PIN DIP	U402
56	85.5157.0001	1	EA	IC, UC2854ADW PREREGULATOR 16PIN SOIC	U301
57	85.5160.0001	1	EA	IC, UCC2305DW HID LAMP CONTROLLER	U401
58	86.6120.0001	1	EA	IC, LTV817S PHOTOCOUPLER SUR MT	U403

400/625W Ballast Rider Board PCB Assembly (cont.)

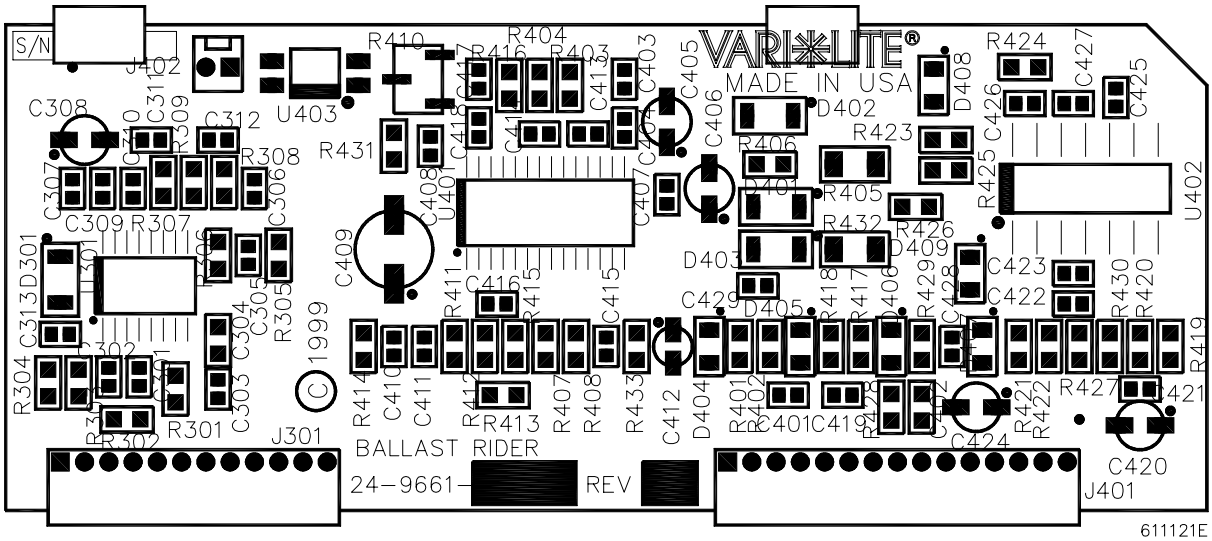


Figure 3-57: 400/625W Ballast Rider Board PCB Assembly

1200W Arc Ballast Module Assembly

23.9661.1269 (VL2415/VL2416 ONLY) Rev H

Refer to Figures 3-58 and 3-59.

No.	Item	Qty.	UM.	Description
1	06.6032.0009	1	EA	CABLE MARKER TIE, WHITE 19 X 7.4"
2	10.9661.1260	1	EA	HEAT SINK, LEFT 1200 WATT POWER SUPPLY
3	10.9661.1261	1	EA	HEAT SINK, RIGHT 1200 WATT POWER SUPPLY
4	10.9661.1262	1	EA	TOP, AIR DUCT 1200 WATT POWER SUPPLY
5	10.9661.1274	10	EA	WASHER, #6 LOCK INTERNAL TOOTH
6	10.9661.1353	1	EA	CHANNEL, AIR APS
7	24.9661.1110	1	EA	PCB ASSY, 1200W BALLAST
8	24.9661.1111	1	EA	PCB ASSY, RIDER 1200W BALLAST
9	51.5006.0004	3	EA	INSULATOR, TO-220 ALUMINUIM OXIDE (4171)
10	51.5029.0001	8	EA	INSULATOR, TO-247 ALUMINUM OXIDE
11	53.6520.0002	6	EA	SCREW, 4-40 X 7/16" PPZ
12	53.6522.0001	5	EA	SCREW, 6-32 X 1/4" PPZ
13	53.6530.0007	2	EA	RIVET, 1/8" OD POP .063-.125GRP RG .265LG CSKH-AL5052
14	53.6609.0001	4	EA	SCREW, 6-32 X 3/8" PFZ
15	53.6616.0001	9	EA	SCREW, 6-32 X 3/4" PPZ
16	55.2178.0001	1	EA	CABLE ANCHOR MOUNT, #8 SCREW MOUNTING
17	55.6509.0001	3	EA	WASHER, SHOULDER (HEATSINK)
18	55.6621.0001	3	EA	WASHER, #4 FLAT ZINC
19	55.6528.0001	9	EA	WASHER, #6 FLAT ZINC
20	55.6537.0001	3	EA	WASHER, #4 LOCK INTERNAL TOOTH
21	55.6538.0001	10	EA	WASHER, #6 LOCK INTERNAL TOOTH
22	55.6658.0009	1	EA	STANDOFF, 1/4 " HEX 6-32 .750" LG MF SS
23	55.6736.2500	0.11	FT	TUBING, TEFLON .053ID STD WALL 500V/MIL, FOR AWG #16
24	60.9244.0251	1	EA	RES, 30W 5% .025 OHM TO-220 POWER FILM
25	60.9245.0100	1	EA	RES, 30W 1% 0.1 OHM TO-220 POWER FILM
26	63.2047.0085	1	EA	THERMOSTAT, 85DEG C PCB MT CLOSE ON RISE
27	63.2047.0105	2	EA	THERMOSTAT, 105DEG C PCB MOUNT CLOSE ON RISE
28	67.4018.0001	1	EA	FERRITE, 26 X 28.5 X 13MM, CYLINDRICAL CORE
29	80.2628.0001	4	EA	TRANSISTOR, IXGH39N60BD1 IGBT 76A 600V
30	80.2647.0001	1	EA	TRANSISTOR, IXGH32N60C IGBT 32A 600V
31	80.2648.0001	2	EA	TRANSISTOR, IXFH32N50 POWER MOSFET 500V 32A TO-247

No.	Item	Qty.	UM.	Description
32	82.4323.0001	1	EA	DIODE, BRIDGE D25XB60 600V 25A SIP
33	82.5341.0001	2	EA	DIODE, DSEI30-06A FRED 25-37A T0-247 AD

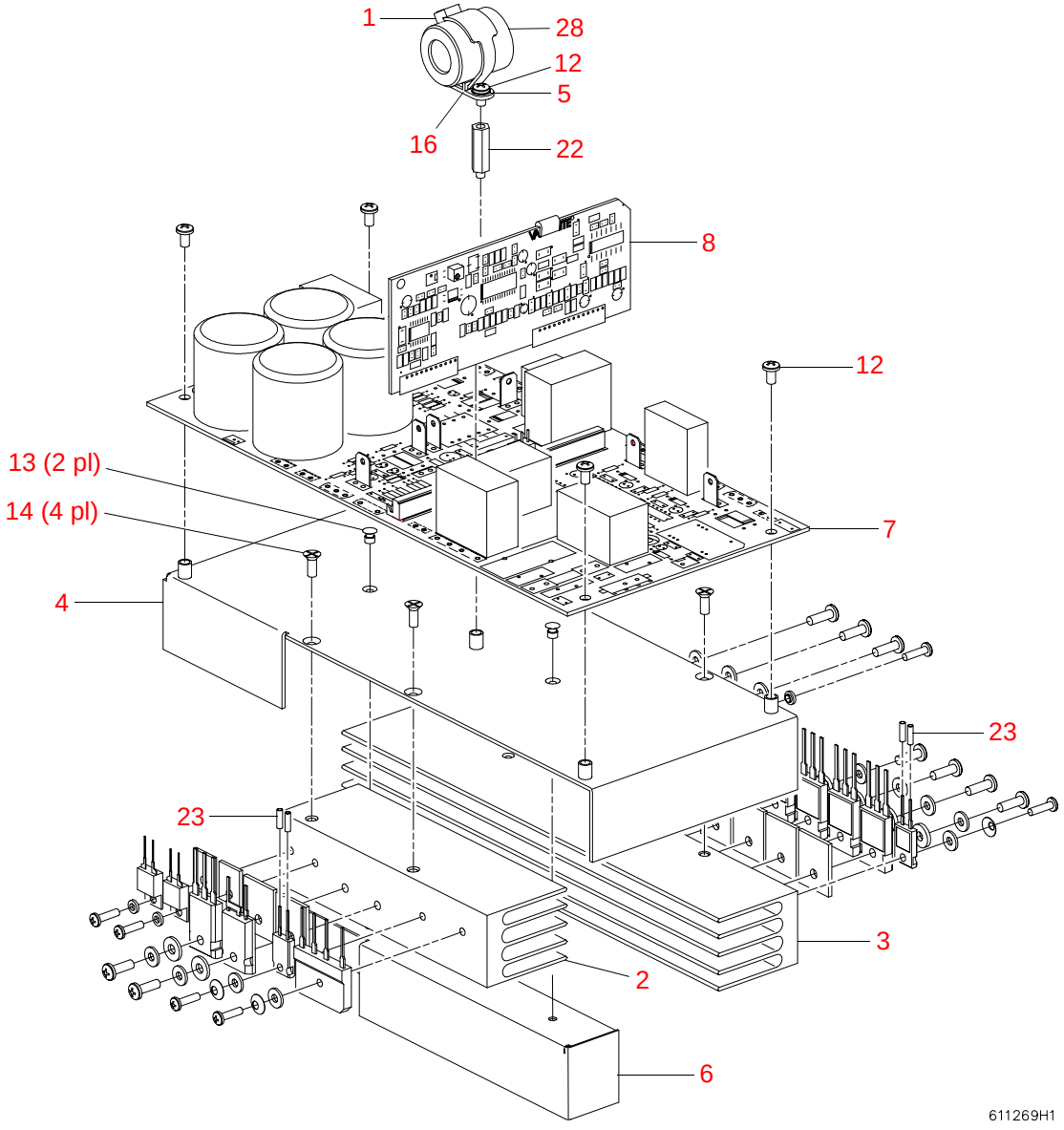


Figure 3-58: 1200W Arc Ballast Module Assembly

1200W Arc Ballast Module Assy (cont.)

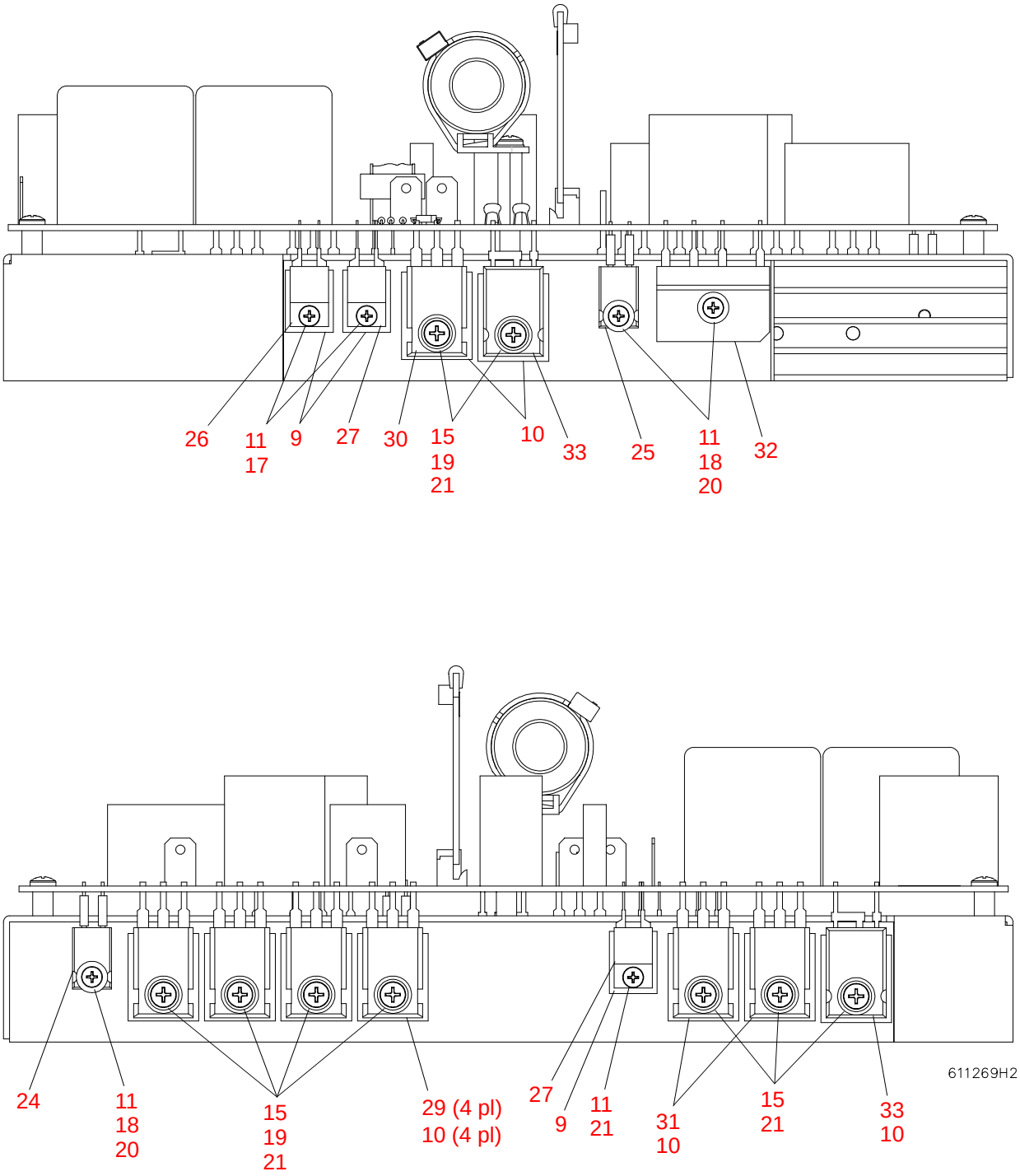


Figure 3-59: 1200W Arc Ballast Module Assembly (side views)

1200W Ballast PCB Assembly

24.9661.1110 (VL2415/VL2416 ONLY) Rev F

Refer to Figure 3-60.

No.	Item	Qty.	UM.	Description	Ref.
1	10.9661.1356	1	EA	GUIDE, APS RIDER PCB	
2	11.9661.1110	1	EA	PCB, VLFS 1200W ARC BALLAST	
3	52.6229.0001	1	EA	HEADER, 3POS MTA FRIC LOK STRT POST	J113
4	52.6261.0002	1	EA	HEADER, 2PIN MTA156	J102
5	52.6296.0001	1	EA	HEADER, 8POS MTA FRCT LOK STRT POST	J112
6	52.6370.0003	1	EA	HEADER ASSY, 3CIR SOCKET MNLOK FMLE	J103
7	52.6574.0012	1	EA	HEADER, 12CIR VERTICAL KK STYLE	J101
8	52.6574.0015	1	EA	HEADER, 15CIR VERTICAL KK STYLE	J201
9	52.8252.0001	10	EA	TERM, .250" TAB PC QUICK-FIT BRASS	J108-J111
10	52.8283.5202	1	EA	TEST POINT, PCB MT .052"HOLE RED GLASS BEAD	J106
11	52.8283.5210	1	EA	TEST POINT, PCB MT .02" HOLE BLK GLASS BEAD	J107
12	60.1230.1214	1	EA	RES, 1/4W 1% 12.1 K MF	R203
13	60.1230.4755	4	EA	RES, 1/4W 1% 475.0 K MF	R112, R113, R202, R218
14	60.1230.8255	1	EA	RES, 1/4W 1% 825.0 K MF	R210
15	60.1231.5623	1	EA	RES, 1/4W 1% 5.62 K MF	R211
16	60.1231.6983	1	EA	RES, 1/4W 1% 6.98 K MF	R114
17	60.1420.2001	1	EA	RES, 1/4W 5% 20.0 OHM CF	R117
18	60.1420.3002	1	EA	RES, 1/4W 5% 300.0 OHM CF	R107
19	60.1420.4302	3	EA	RES, 1/4W 5% 430.0 OHM CF	R216, R221, R224
20	60.1420.5101	4	EA	RES, 1/4W 5% 51.0 OHM CF	R212-R215
21	60.1420.5105	2	EA	RES, 1/4W 5% 510.0 K CF	R110, R111
22	60.1420.7505	2	EA	RES, 1/4W 5% 750.0 K CF	R105, R106
23	60.1421.1201	3	EA	RES, 1/4W 5% 12.0 OHM CF	R206-R208
24	60.1421.3301	1	EA	RES, 1/4W 5% 33.0 OHM CF	R109
25	60.1421.6803	1	EA	RES, 1/4W 5% 6.8 K CF	R104
26	60.1421.6805	1	EA	RES, 1/4W 5% 680.0 K CF	R102
27	60.1422.1001	4	EA	RES, 1/4W 5% 1.0 K CF	R219, R220, R223
28	60.1424.2004	1	EA	RES, 1/4W 5% 20.0 K CF	R108
29	60.1424.2702	1	EA	RES, 1/4W 5% 27.0 K CF	R103

No.	Item	Qty.	UM.	Description	Ref.
30	60.1426.1003	3	EA	RES, 1/4W 5% 100.0 K CF	R225, R226
31	60.1431.1007	1	EA	RES, 1/4W 5% 10.0 OHM	R217
32	60.3421.5104	2	EA	RES, 2W 5% 51.0 K CF	R115, R116
33	60.7440.1002	1	EA	RES, 5W 5% 100.0 OHM WW	R209
34	62.2110.0474	1	EA	CAP, .47UF 250V RAD METALLIZED POLYEST 15MM L.S. 10%	C219
35	62.3007.0105	2	EA	CAP, 1.0 UF 275VAC X2 RFI SUPPRESSOR 10%	C101, C102
36	62.3013.0105	3	EA	CAP, 1UF 630V RAD MET PLYPLN 10%	C105, C201, C204
37	62.3017.0222	3	EA	CAP, 2200PF 250V RAD CER DISC Y-CLASS	C103, C104, C223
38	62.3021.2331	1	EA	CAP, 330PF 200V RAD CER 20% X7R	C203
39	62.3023.0104	12	EA	CAP, .1UF 50V RAD CER 20% Z5U	C109, C115, C206, C209, C211, C214, C218, C220, C222, C225, C226
40	62.3023.0333	1	EA	CAP, .33UF 50V RAD CER 20% Z5U	C106
41	62.3023.0473	3	EA	CAP, .47UF 50V RAD CER 20% Z5U	C107, C210, C215
42	62.3027.0102	1	EA	CAP, 1000PF 1600V RAD POLYPROPYLENE .600" 10%	C205
43	62.3028.0333	1	EA	CAP, .033UF 630V RAD POLYPROPYLENE .886" 10%	C216
44	62.3412.0687	4	EA	CAP, 680UF 250V 105C ALUM SNAP-IN 20%	C110-C113
45	62.4009.0107	1	EA	CAP, 100UF 35V RAD ALUM 8 X 11.5 MM 20%	C114
46	62.4010.0106	1	EA	CAP, 10UF 50V RAD ALUM 4 X 11 MM 20%	C221
47	62.4010.0475	7	EA	CAP, 4.7UF 50V RAD ALUM 5 X 11 MM 20%	C108, C116, C207, C208, C212, C213, C217
48	63.2048.0001	2	EA	THERMISTOR, 10A 2.5 OHM NTC CURRENT LIMIT	NTC101, NTC102
49	63.2050.0001	1	EA	VARISTOR, METAL OXIDE 300V RMS 165J 775V CLAMP	VR1
50	68.4536.0002	1	EA	CHOKE, COMMON MODE FILTER 1.35MH 11A	L102
51	68.4569.0001	1	EA	INDUCTOR, AS-104 CURRENT SENSE 5OOT 15A 1500V	L201
52	68.9661.1112	1	EA	TRANSFORMER, GATE DRIVE	T201
53	68.9661.1115	1	EA	CHOKE, EMI DIFFERENTIAL	L101
54	70.3727.0002	2	EA	FUSE CLIP, 1/4" PC BOARD TINNED BRASS	XF101
55	70.3762.0020	1	EA	FUSE, 20A 250VAC VERY FAST ACT 1/4" X 1 1/4" CERAMIC	F101
56	73.6016.0006	0.25	EA	WIRE, 16AWG 600V 105C PVC BLU UL1015	

No.	Item	Qty.	UM.	Description	Ref.
57	80.2623.0001	2	EA	TRANSISTOR, 2N4401 NPN 40V 600MA	Q102, Q203
58	80.2623.0003	3	EA	TRANSISTOR, 2N4403 PNP 40V 600MA TO-92	Q103, Q204, Q211
59	80.2643.0001	2	EA	TRANSISTOR, MPSW63 1W PNP DARLINGTON 30V 500MA 1W TO-92	Q205, Q210
60	82.4308.4937	5	EA	DIODE, 1N4937 FAST 600V 1A	D206-D210
61	82.4317.5819	1	EA	DIODE, 1N5819 RECTIFIER 40V 1A	D212
62	82.5318.0160	1	EA	DIODE, MUR160, 600V, 1A	D104
63	82.5322.0001	1	EA	DIODE, 1N4736A	D215
64	82.5323.0001	2	EA	DIODE, MUR460 600V 4AMP ULTRAFAST	D202, D205
65	82.5340.0001	4	EA	DIODE, ZENER 1.5KE250A TVS 250V 1500W	D203, D204, D213, D214
66	82.5347.0001	1	EA	DIODE, SB160 SCHOTTKY RECTIFIER 60V 1A	D103
67	82.5351.0001	1	EA	DIODE, ZENER 20V 1W 5% DO-41	D102
68	84.7427.0001	1	EA	IC, WPCO3R24S15L DC-DC CONVERTER 3W	U203
69	85.5120.0001	2	EA	IC, IR2110, 1/2 BRIDGE DRIVER	U201, U202
70	86.6109.0001	1	EA	IC, OPTOCOUPLER DUAL CHANNEL 8PIN DIP	U204

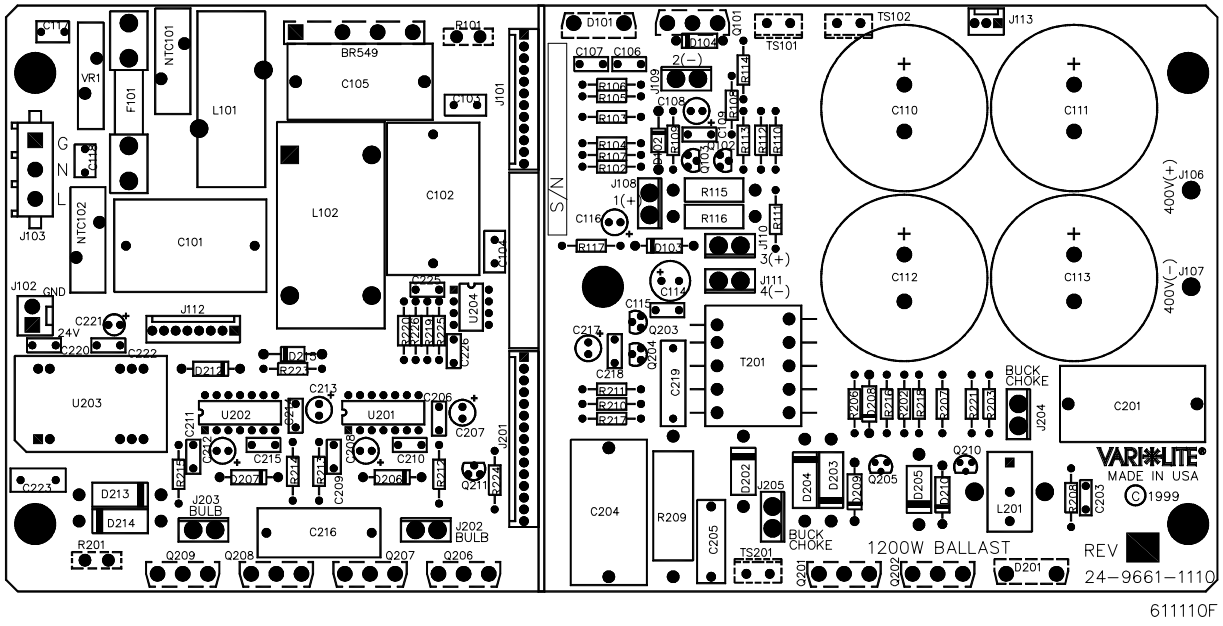


Figure 3-60: 1200W Ballast PCB Assembly

1200W Ballast Rider PCB Assembly

24.9661.1111 (VL2415/VL2416 ONLY) Rev E

Refer to Figure 3-61.

No.	Item	Qty.	UM.	Description	Ref.
1	10.9661.1355	2	EA	STABILIZING EXTRUSION, APS RIDER BD PCB	
2	11.9661.1111	1	EA	PCB, BALLAST RIDER	
3	50.4002.0014	1	EA	SOCKET, 14 PIN DIP GULL WING SUR MT OPEN FRAME	XU402
4	52.6297.0001	1	EA	HEADER, 2PIN MTA FRCT LOK STRT POST	J402
5	52.6576.0012	1	EA	CONN, 12 CIR .100" PC BOARD	J301
6	52.6576.0015	1	EA	CONN, 15 CIR .100" PC BOARD	J401
7	60.0460.1004	1	EA	RES, 1/8W 5% 10.0 K THK FLM CHIP SUR MT EIA-1206	R401
8	60.9462.1003	2	EA	RES, 1/2W 5% 1.0 K 200V CHIP THK FLM SMT2010	R405, R432
9	60.9463.0000	1	EA	RES, 1/8W ZERO OHM 200V CHP THK FLM S-MT1206	R433
10	60.9463.1004	1	EA	RES, 1/8W 1% 10.O K 200V CHP THK FLM S-MT1206	R306
11	60.9463.1005	1	EA	RES, 1/8W 1% 100.0 K 200V CHP THK FLM S-MT1206	R408
12	60.9463.1215	1	EA	RES, 1/8W 1% 121.0 K 200V CHP THK FLM S-MT1206	R407
13	60.9463.1624	1	EA	RES, 1/8W 1% 16.2 K 200V CHP THK FLM S-MT1206	R412
14	60.9463.2003	1	EA	RES, 1/8W 1% 2.0 K 200V CHP THK FLM S-MT1206	R303
15	60.9463.2004	2	EA	RES, 1/8W 1% 20.0 K 200V CHP THK FLM S-MT1206	R307, R419
16	60.9463.5623	2	EA	RES, 1/8W 1% 5.62 K 200V CHP THK FLM S-MT1206	R301, R304
17	60.9463.6193	1	EA	RES, 1/8W 1% 6.19 K 200V CHP THK FLM S-MT1206	R411
18	60.9463.9313	1	EA	RES, 1/8W 1% 9.31 K 200V CHP THK FLM S-MT1206	R420
19	60.9463.9315	1	EA	RES, 1/8W 1% 931.0 K 200V CHP THK FLM S-MT1206	R427
20	60.9464.1003	1	EA	RES, 1/8W 5% 1.0 K 200V CHP THK FLM S-MT1206	R406
21	60.9464.2003	1	EA	RES, 1/8W 5% 2.0 K 200V CHP THK FLM S-MT1206	R413
22	60.9464.2004	9	EA	RES, 1/8W 5% 20.0 K 200V CHP THK FLM S-MT1206	R309, R309, R402, R417, R424, R425, R426, R428
23	60.9464.2005	1	EA	RES, 1/8W 5% 200.0 K 200V CHP THK FLM S-MT1206	R422
24	60.9464.2703	1	EA	RES, 1/8W 5% 2.7 K 200V CHP THK FLM S-MT1206	R416
25	60.9464.3002	2	EA	RES, 1/8W 5% 300.0 OHM 200V CHP THK FLM S-MT1206	R403, R404
26	60.9464.3005	1	EA	RES, 1/8W 5% 300.0 K 200V CHP THK FLM S-MT1206	R429
27	60.9464.4703	2	EA	RES, 1/8W 5% 4.7 K 200V CHP THK FLM S-MT1206	R430, R431
28	60.9464.4704	1	EA	RES, 1/8W 5% 47.0 K 200V CHP THK FLM S-MT1206	
29	60.9464.6804	1	EA	RES, 1/8W 5% 68.0 K 200V CHP THK FLM S-MT1206	R302

No.	Item	Qty.	UM.	Description	Ref.
30	60.9464.7505	1	EA	RES, 1/8W 5% 750.0 K 200V CHP THK FLM S-MT1206	R421
31	60.9464.8204	1	EA	RES, 1/8W 5% 82.0 K 200V CHP THK FLM S-MT1206	R305
32	62.3009.0473	1	EA	CAP, .047UF 50V 10% MONO CER CHIP SUR MT	C417
33	62.4000.0102	1	EA	CAP, 1000PF 50V 5% CER CHIP MONO COG	C309
34	62.4000.0105	14	EA	CAP, .1UF 50V 20% CER CHIP SUR MT Z5U EIA0805	C305-C307, C310, C312, C404, C407, C408, C419, C421, C422, C423, C426, C427
35	62.4000.0331	1	EA	CAP, 330PF 50V 5% CER CHIP SUR MT COG EIA0805	C413
36	62.4003.0102	3	EA	CAP, 1000PF 50V 10% CER CHIP SUR MT X7R EIA0805	C416, C418, C425
37	62.4003.0221	1	EA	CAP, 220PF 50V 10% CER CHIP SUR MT X7R 0805	C302
38	62.4003.0331	1	EA	CAP, 330PF 50V 10% CER CHIP SUR MT X7R 0805	C313
39	62.4004.0221	1	EA	CAP, 220PF 50V 20% CER CHIP SUR MT X7R EIA0805	C403
40	62.4004.0222	1	EA	CAP, 2200PF 50V 20% CER CHIP SUR MT X7R EIA0805	C415
41	62.4005.0101	2	EA	CAP, 100PF 50V 10% CER CHIP SUR MT COG 0805	C410, C411, C424, C429
42	62.4005.0220	1	EA	CAP, 22PF 50V 10% CER CHIP SUR MT COG 0805	C301
43	62.4005.0330	1	EA	CAP, 33PF 50V 10% CER CHIP SUR MT COG 0805	C428
44	62.4006.0222	1	EA	CAP, 2200PF 50V 5% CER CHIP SUR MT X7R 0805	C401
45	62.4007.0474	2	EA	CAP, .47UF 50V 20% CER CHIP SUR MT Z5U 1210	C304, C402
46	62.4221.0105	1	EA	CAP, 1UF 50V 20% ALUM ELECTRO SUR MT	C412
47	62.4223.0475	5	EA	CAP, 4.7UF 50V ALUM ELECTRO SUR MT LOW ESR	C308, C405, C406, C420, C424
48	62.4224.0107	1	EA	CAP, 100UF 35V 20% AL ELEC 8MM DIA 105C S-MT	C409
49	63.2049.0001	1	EA	POT, 500 OHM CERMET 13 TRN SUR MT	R410
50	82.4327.0001	2	EA	DIODE, 1N5819M RECTIFIER GLASS MELF	D301, D403
51	82.5344.0001	1	EA	DIODE, GLL4740A ZENER	D401
52	82.5345.0001	1	EA	DIODE, GLL4736A ZENER	D402
53	82.5346.0001	6	EA	DIODE, LL4148 SMALL SIGNAL	D404-D409
54	83.3181.0001	1	EA	IC, MC3405P DUAL OP-AMP/DUAL COMPARATOR 14PIN DIP	U402
55	85.5157.0001	1	EA	IC, UC2854ADW PREREGULATOR 16PIN SOIC	U301
56	85.5160.0001	1	EA	IC, UCC2305DW HID LAMP CONTROLLER	U401
57	86.6120.0001	1	EA	IC, LTV817S PHOTOCOUPLER SUR MT	U403

1200W Ballast Rider PCB Assembly (cont.)

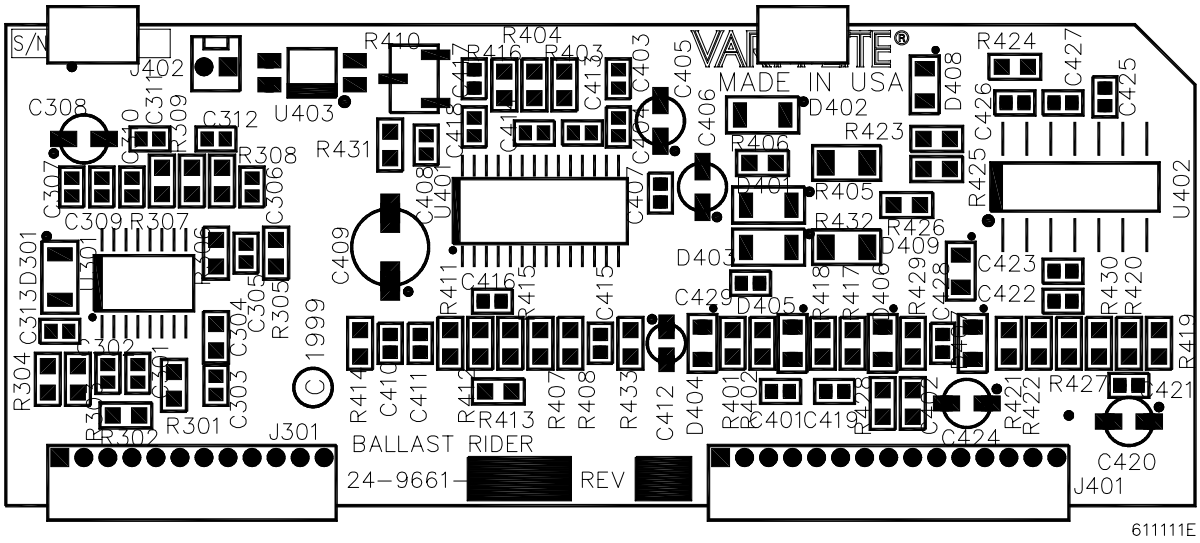


Figure 3-61: 1200W Ballast Rider PCB Assembly

Notes

Cables

SSR AC Cable Assembly

25.9661.1312 (VL2411/VL2412 ONLY) Rev 0

Refer to Figure 3-62.

No.	Item	Qty.	UM.	Description
1	52.8232.0001	2	EA	TERM, RING #10 16-14AWG (LOOSE)
2	52.8312.0001	2	EA	RECP, FASTON 1/4" 18-14 AWG INSULATED VO
3	73.3516.0006	0.42	FT	WIRE, 16AWG 300V 105C PVC BLU UL1569
4	73.3516.0010	0.46	FT	WIRE, 16AWG 300V 105C PVC BLK UL1569

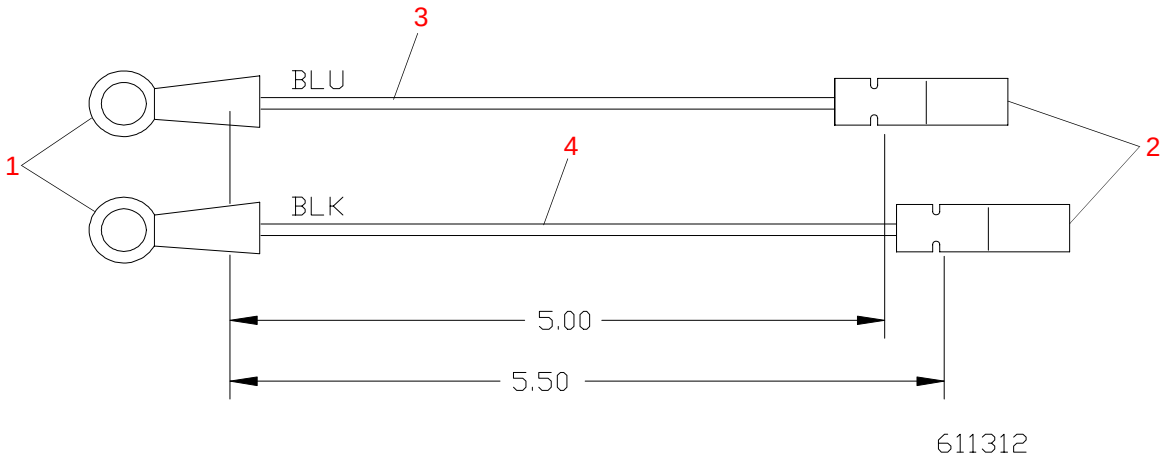


Figure 3-62: SSR AC Cable Assembly

SSR DC Cable Assembly

25.9661.1313 (VL2411/VL2412 ONLY) Rev A

Refer to Figure 3-63.

No.	Item	Qty.	UM.	Description
1	52.6442.2203	1	EA	RECEPT, MTA156 W/TAB RED 3POS
2	52.8231.0003	2	EA	TERM, RING #6 RED 22-18AWG INSUL (LOOSE)
3	73.3022.0001	5.50	IN	WIRE, 22AWG 300V 80C PVC BRN UL1007
4	73.3022.0004	5.50	IN	WIRE, 22AWG 300V 80C PVC YEL UL1007

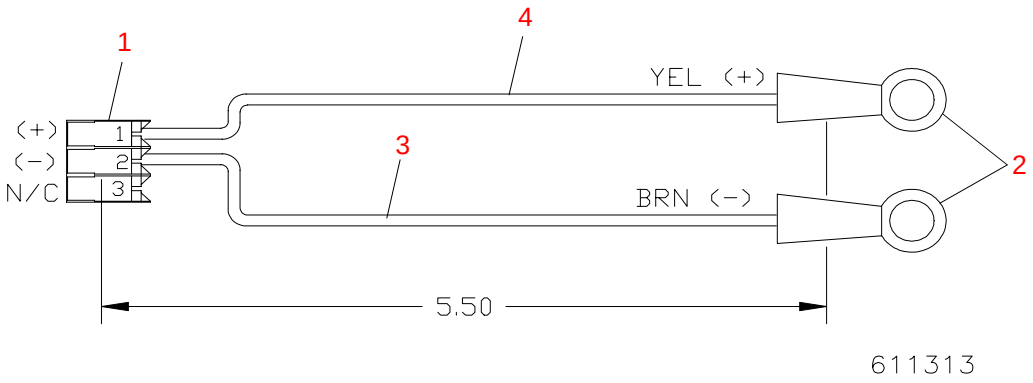


Figure 3-63: SSR DC Cable Assembly

AC Input Pigtail (Euro) Cable Assembly

25.9661.1511 Rev D

Refer to Figure 3-64.

No.	Item	Qty.	UM.	Description
1	52.6274.2313	1	EA	STRAIN RELIEF, SKINTOP FLEX TYPE PG13 BLK
2	52.6401.2321	1	EA	CONN, PLUG "CE MARKED" 20A 250V TWIST-LOCK MALE LINE, 3-WIRE
3	52.8231.0005	1	EA	TERM, RING #6 BLUE 16-14 AWG REEL PIDG
4	52.8313.0001	2	EA	RCPT, FASTON 1/4" 18-14 AWG FLAG DBL CRP
5	55.2268.0187	.92	FT	HEATSHRINK, 3/16" CLEAR KYNAR VDE UL 600V 150 DEG C
6	55.2268.0500	.13	FT	HEATSHRINK, 1/2" CLEAR KYNAR VDE UL 600V 150 DEG C
7	73.9636.0153	4.0	FT	CORDAGE, 1.5/3 750V 60C EURO BLK HD-22 11mmOD

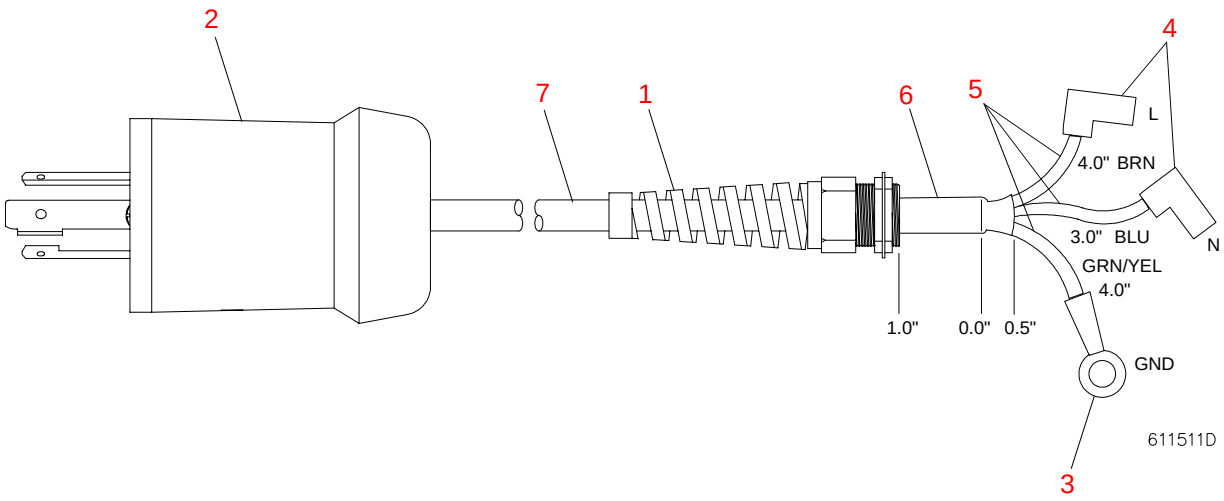


Figure 3-64: AC Input Pigtail (Euro) Cable Assembly

AC Input Link Cable Assembly

25.9661.1512 Rev B

Refer to Figure 3-65.

No.	No.	Qty.	UM.	Description
1	52.8312.0001	2	EA	RECP, FASTON 1/4" 18-14 AWG INSULATED VO
2	52.8313.0001	2	EA	RCPT, FASTON 1/4" 18-14 AWG FLAG DBL CRP
3	55.2186.0001	1	EA	CABLE TIE, .10" WD 4.00" LG SMALL
4	73.6016.0009	6	IN	WIRE, 16AWG 600V 105C PVC WHT UL1015
5	73.6016.0010	6	In	WIRE, 16AWG 600V 105C PVC BLK UL1015

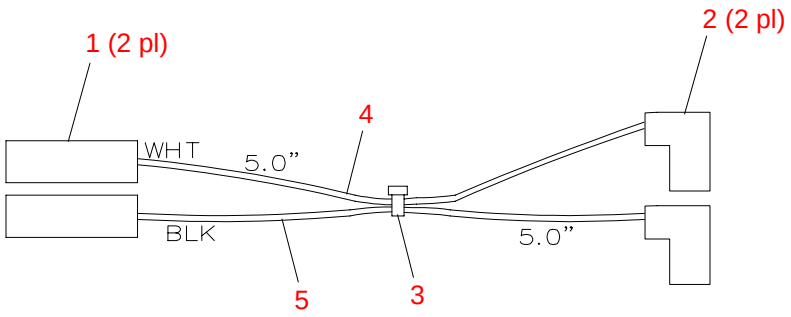


Figure 3-65: AC Input Link Cable Assembly

AC Input Splitter Cable Assembly

25.9661.1513 Rev C

Refer to Figure 3-66.

No.	Item	Qty.	UM.	Description
1	52.6231.0001	1	EA	PLUG HOUSING, MNLOK PLUG 3POS
2	52.6464.0003	1	EA	CONN HOUSING, SL-156 3 POS
3	52.8231.0005	1	EA	TERM, RING #6 BLUE 16-14 AWG REEL PIDG
4	52.8270.0001	2	EA	CONTACT PIN, 20-14 AWG MNLOK (REEL)
5	52.8312.0001	2	EA	RECP, FASTON 1/4" 18-14 AWG INSULATED VO
6	52.8314.0001	1	EA	CONTACT, GROUND PIN 20-14 AWG - MATE-N-LOK
7	52.8323.0001	2	EA	CONTACT, CRIMP 18-22 AWG SL-156
8	55.2186.0001	3	EA	CABLE TIE, .10" WD 4.00" LG SMALL
9	55.6699.0003	1.50	FT	SLEEVING, 1/2" NOM.DIA. POLY EXP BRAIDED
10	73.6016.0009	1.75	FT	WIRE, 16AWG 600V 105C PVC WHT UL1015
11	73.6016.0010	1.75	FT	WIRE, 16AWG 600V 105C PVC BLK UL1015
12	73.6016.0504	0.42	FT	WIRE, 16AWG 600V 105C PVC GRN/YEL UL1015
13	73.6018.0009	0.42	FT	WIRE, 18AWG 600V 105C PVC WHT UL1015
14	73.6018.0010	0.42	FT	WIRE, 18AWG 600V 105C PVC BLK UL1015

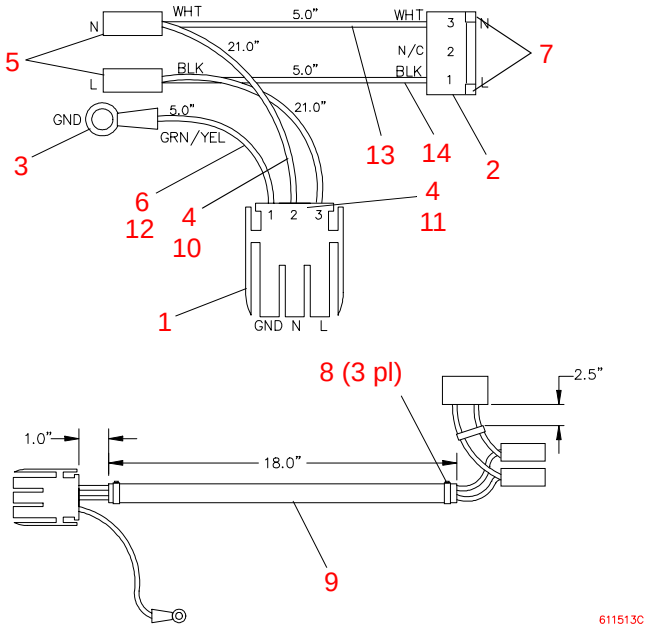


Figure 3-66: AC Input Splitter Cable Assembly

LVS Chassis Ground Cable Assembly

25.9661.1514 Rev A

Refer to Figure 3-67.

No.	Item	Qty.	UM.	Description
1	52.8231.0001	1	EA	TERM, RING #6 BLUE 16-14 AWG REEL PIDG
2	52.8271.0001	1	EA	FASTON RECEPT, 16-14 AWG (REEL)
3	73.3516.0504	3.5	IN	WIRE, 16 AWG 300V 105C PVC GRN/YEL UL1569

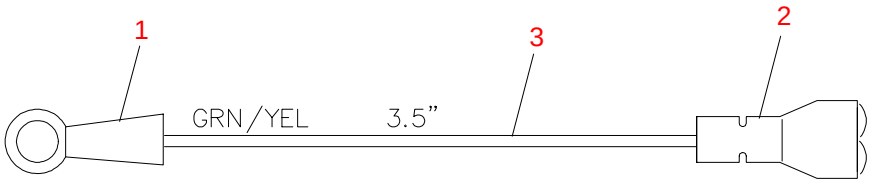


Figure 3-67: LVS Chassis Ground Cable Assembly

Main to Aux/Data & Power - 2400 Cable Assembly

25.9661.1516.02 Rev B

Refer to Figure 3-68.

No.	Item	Qty.	UM.	Description
1	52.6484.0006	2	EA	RECEPT, 6 POS DUAL ROW MINI-FIT JR
2	52.8333.0001	8	EA	CONTACT, FEMALE 18-20 AWG REEL HCS (PWR)
3	52.8333.2228	4	EA	CONTACT, 22-28AWG FEM REEL GOLD MFJR (DATA)
4	55.2186.0001	2	EA	CABLE TIE, .10" WD 4.00" LG SMALL
5	55.6699.0003	2.0	ft	SLEEVING, 1/2" NOM.DIA. POLY EXP BRAIDED
6	73.3518.0002	4.33	FT	WIRE, 18AWG 300V 105C PVC RED UL1569
7	73.3518.0010	4.33	FT	WIRE, 18AWG 300V 105C PVC BLK UL1569
8	73.5114.0406	2.17	FT	WIRE, 24AWG TWISTED PAIR 300V 80C PVC YEL/BLU UL1061

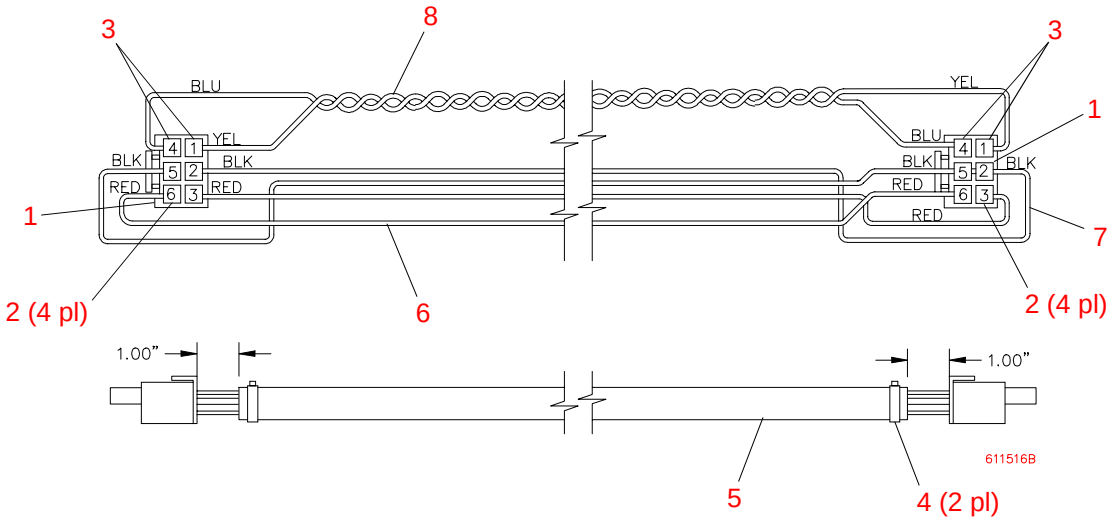


Figure 3-68: Main to Aux/Data & Power -2400 Cable Assembly

Pan/Tilt Control - 2400 Cable Assembly

25.9661.1517.02 Rev E

Refer to Figure 3-69.

No.	Item	Qty.	UM.	Description
1	52.6211.0008	1	EA	COVER, BACK SHIELD/NON-SHIELD F/DBL ROW 20POS
2	52.6212.0008	1	EA	COVER, FRONT LATCH F/DBL ROW 20POS
3	52.6524.0005	2	EA	CONN, HOUSING 5POS RECEPTACLE
4	52.6588.0007	2	EA	CONN, HOUSING 7CIR DISCONNECTABLE CRIMP STYLE XH
5	52.6610.0008	1	EA	CONN, HOUSING 20POS DBL ROW UNLOADED
6	52.7007.0001	6	EA	CONTACT, 28-22AWG PHOSPHOR BRONZE TIN-PLT SXH
7	52.8346.0001	10	EA	CONTACT, 24-30AWG FEMALE CRIMP
8	52.8351.0002	16	EA	CONTACT, 26-22AWG RECEPTACLE MTE (REEL)
9	55.2186.0001	3	EA	CABLE TIE, .10" WD 4.00" LG SMALL
10	55.6699.0003	3.5	ft	SLEEVING, 1/2" NOM.DIA. POLY EXP BRAIDED
11	73.5119.0246	4.0	FT	WIRE, 24AWG 3COND TW 600V 200C <RED-YEL-BLU>UL1213
12	73.5121.0001	4.0	FT	CABLE, 24AWG 5COND TW 600V 200C PTFE TEF

Pan/Tilt Control - 2400 Cable Assembly (cont.)

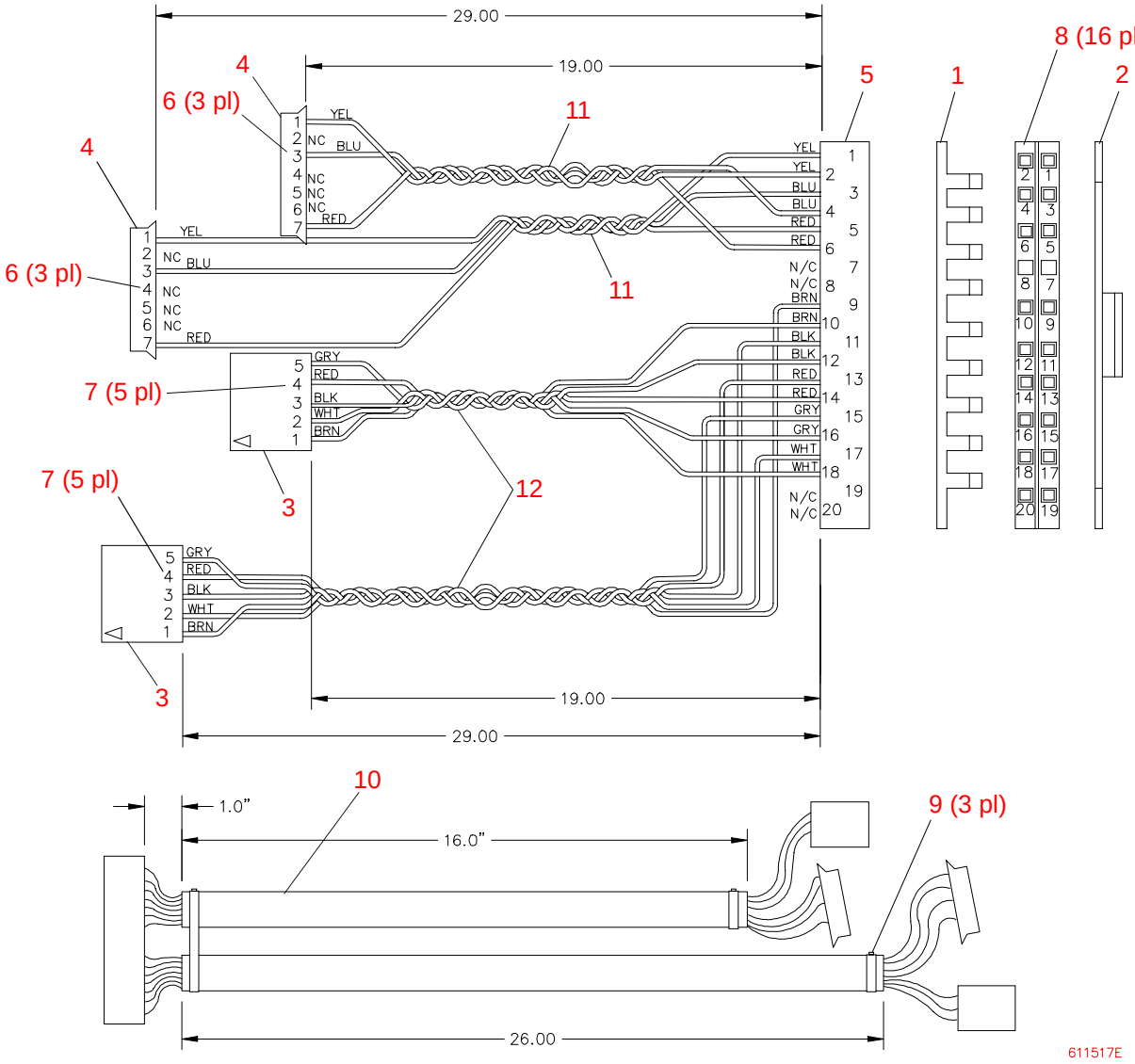


Figure 3-69: Pan/Tilt Control - 2400 Cable Assembly

Lamp Supply Control Cable Assembly

25.9661.1518 Rev A

Refer to Figure 3-70.

No.	Item	Qty.	UM.	Description
1	52.6396.2208	2	EA	RECEPT, 8POS MTA100 W/POL TAB RED CLSD END
2	55.2197.0001	1.25	IN	HEATSHRINK, 3/8" BLACK
3	73.7028.0001	1.67	FT	CBL, 22AWG 8COND

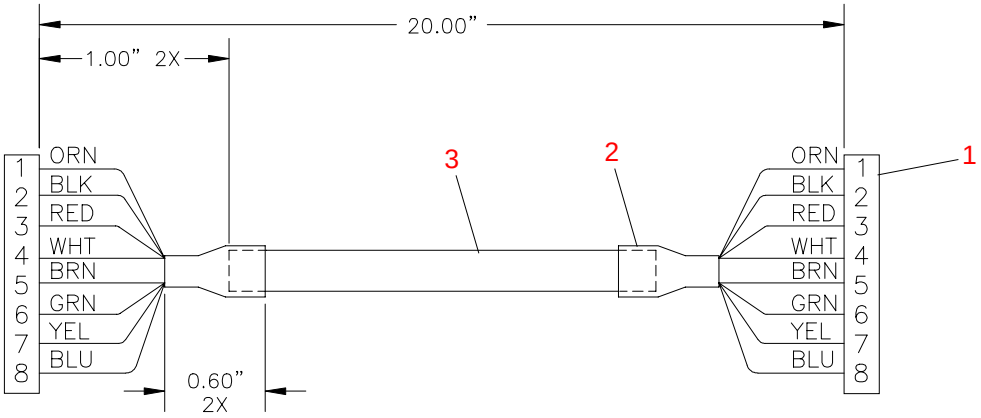


Figure 3-70: Lamp Supply Control Cable Assembly

Motor Harness Cable Assembly

25.9661.1519 Rev G

Refer to Figure 3-71.

No.	Item	Qty.	UM.	Description
1	04.9661.0041.00	0	EA	LABEL SET, MOTOR HARNESS - 2400 SERIES
2	52.6211.0017	2	EA	COVER, BACK SHIELD/NON-SHIELD F/DBL ROW 50POS
3	52.6212.0017	2	EA	COVER, FRONT LATCH F/DBL ROW 50POS
4	52.6467.0003	1	EA	CONN, FEM PLUG 3 POS 30-24 AWG CRIMP PHR
5	52.6467.0011	6	EA	CONN, FEM PLUG 11 POS 30-24AWG CRIMP PHR
6	52.6467.0024	27	EA	CONTACT, SOCKET 30-24AWG CRIMP (REEL) PH (JST)
7	52.6524.0002	2	EA	CONN, HOUSING 2POS RECEPTACLE
8	52.6610.0017	2	EA	CONN, HOUSING 50POS DBL ROW UNLOADED
9	52.8271.0004	1	EA	RECEPT.FASTON .250" 22-18AWG (LOOSE)
10	52.8346.0001	4	EA	CONTACT, 24-30AWG FEMALE CRIMP
11	52.8351.0001	100	EA	CONTACT, 26-22AWG RECEPTACLE MTE (LOOSE)
12	55.2186.0001	6	EA	CABLE TIE, .10" WD 4.00" LG SMALL
13	55.2260.0294	1.75	FT	SLEEVING, FIBERGLASS .294" ID
14	55.6699.0003	0.50	FT	SLEEVING, 1/2" NOM.DIA. POLY EXP BRAIDED
15	55.6706.0001	1	EA	GROMMET, 9/32" ID 9/16" OD 1/4T SILICONE RED
16	73.2624.0002	6.17	FT	WIRE, 24AWG 600V 200C TEF RED TYPE E
17	73.2624.0009	0.08	FT	WIRE, 24AWG 600V 200C TEF WHT TYPE E **(not shown)**
18	73.2624.0010	4.08	FT	WIRE, 24AWG 600V 200C TEF BLK TYPE E **(not shown)**
19	73.5119.0246	3.17	FT	WIRE, 24AWG 3COND TW 600V 200C <RED-YEL-BLU>UL1213 **(not shown)**
20	73.5120.0123	11.67	FT	WIRE, 24AWG 4COND TW 600V 200C <BLK-BRN-RED-ORG>UL1213 **(not shown)**

Motor Harness Cable Assembly (cont.)

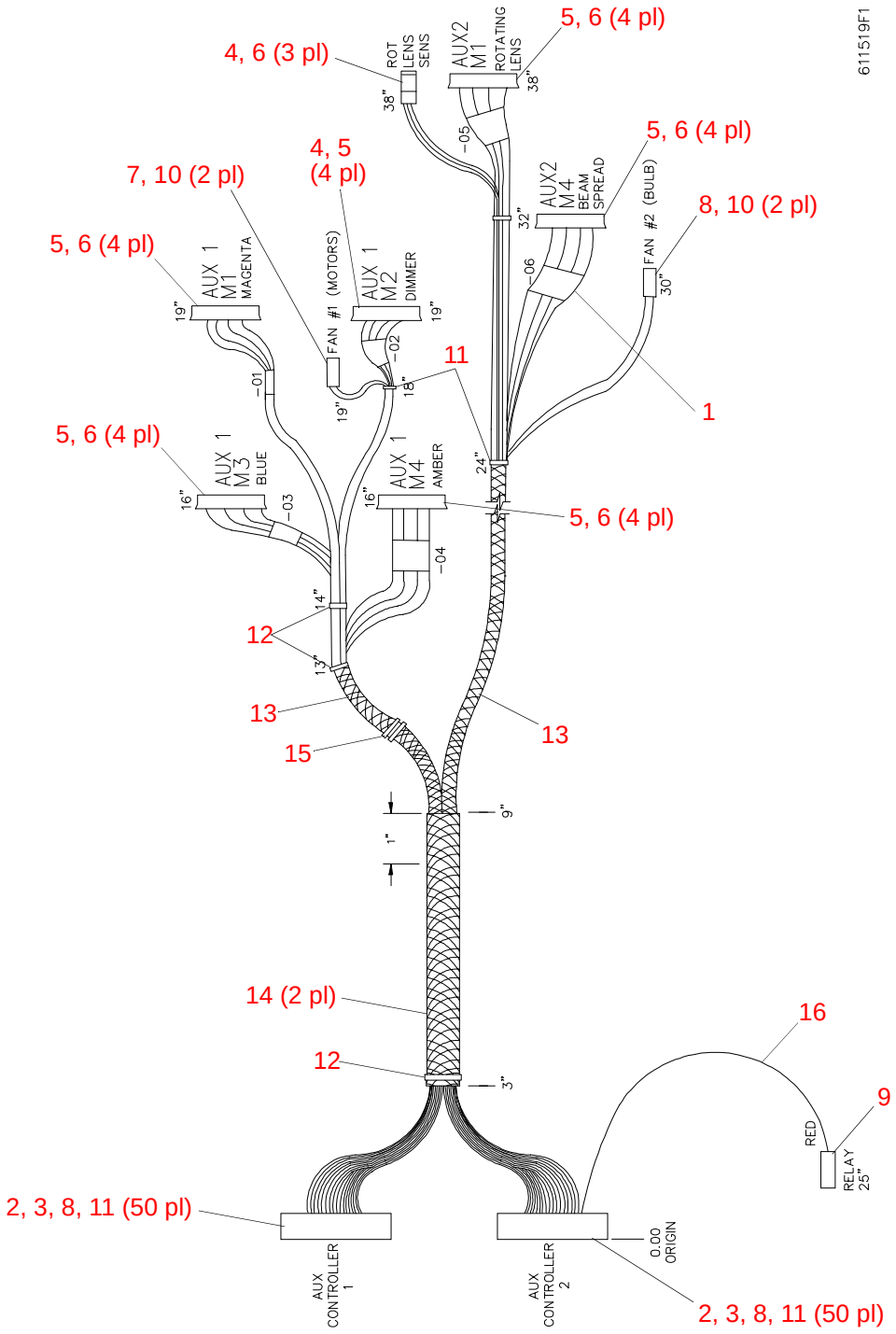


Figure 3-71: Motor Harness Cable Assembly

Chassis To Yoke Ground Cable Assembly

25.9661.1520 Rev A

Refer to Figure 3-72.

No.	Item	Qty.	UM.	Description
1	52.8250.0001	2	EA	TERM, #8, RING, 10AWG
2	73.7089.0504	15.17	FT	WIRE, 22AWG 300V 200C TEF GRN/YEL UL1180

Figure 3-72: Chassis To Yoke Ground Cable Assembly

Yoke to Head Ground Cable Assembly

25.9661.1521 Rev D

Refer to Figure 3-73.

No.	Item	Qty.	UM.	Description
1	52.8250.0001	2	EA	TERM, #8, RING, 10AWG
2	73.7089.0504	9.33	FT	WIRE, 22AWG 300V 200C TEF GRN/YEL UL1180

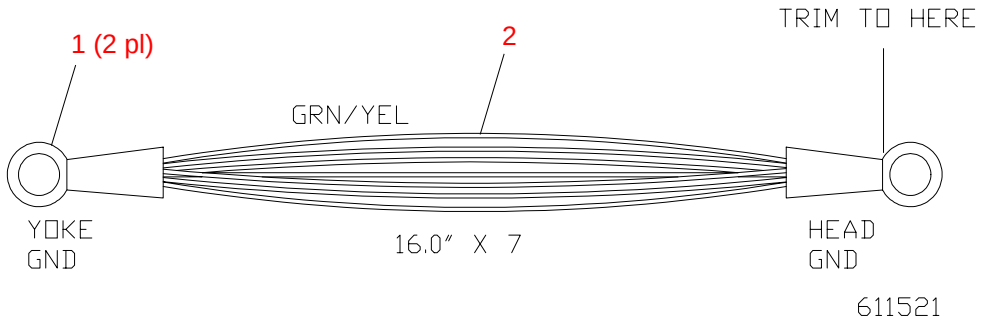


Figure 3-73: Yoke to Head Ground Cable Assembly

Head to Back Cap Ground Cable Assembly

25.9661.1522 Rev B

Refer to Figure 3-74.

No.	Item	Qty.	UM.	Description
1	52.8311.0003	2	EA	TERM, RING #6 14-16AWG NON-INS. TAPE
2	73.7130.0001	1.33	FT	WIRE, 7/64" TUBULAR BRAID TINNED COPPER

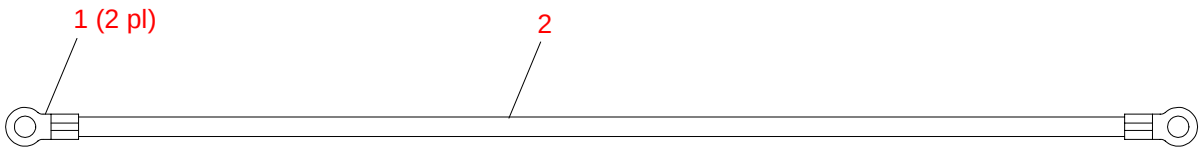


Figure 3-74: Head to Back Cap Ground Cable Assembly

Lamp Supply To Relay -2400 Cable Assembly

25.9661.1525 Rev D

Refer to Figure 3-75.

No.	Item	Qty.	UM.	Description
1	52.8312.0001	4	EA	RECP, FASTON 1/4" 18-14 AWG INSULATED VO
2	55.2186.0001	3	EA	CABLE TIE, .10" WD 4.00" LG SMALL
3	55.6699.0003	2.83	FT	SLEEVING, 1/2" NOM.DIA. POLY EXP BRAIDED
4	73.7089.0000	22.16	FT	WIRE, 22AWG BLK 300V TEFLON STRANDED
5	73.7089.0009	22.16	FT	WIRE, 22AWG WHT TEFLON STRANDED

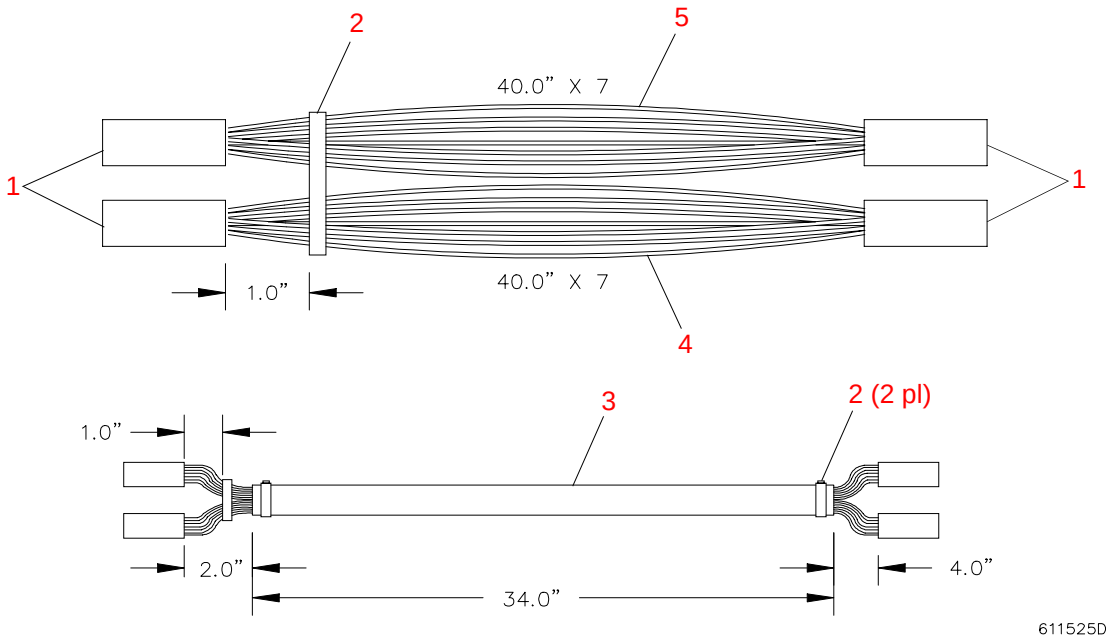


Figure 3-75: Lamp Supply To Relay -2400 Cable Assembly

Ignitor to Relay Cable Assembly

25.9661.1526 (VL2413/VL2414/VL2415/VL2516 ONLY) Rev B

Refer to Figure 3-76.

No.	Item	Qty.	UM.	Description
1	52.8223.0001	1	EA	TERM, RING #6 BLUE 16-14 AWG (LOOSE) PIDG
2	52.8312.0001	1	EA	RECP, FASTON 1/4" 18-14 AWG INSULATED VO
3	73.7101.0009	0.42	FT	WIRE, 14AWG 15KV 150C SILICONE 41/30 STRANDING

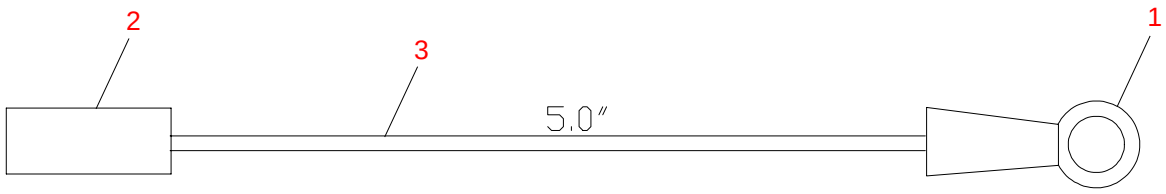


Figure 3-76: Ignitor to Relay Cable Assembly

Bulb Socket to Ignitor Cable Assembly

25.9661.1527 (VL2413/VL2414/VL2415/VL2516 ONLY) Rev B

Refer to Figure 3-77.

No.	Item	Qty.	UM.	Description
1	52.8231.0005	2	EA	TERM, RING #6 BLUE 16-14 AWG REEL PIDG
2	52.8274.0004	2	EA	CONN, BUTT SPLICE 16-14AWG NON INSUL
3	55.2200.0003	.34	FT	HEATSHRINK, 3/16" VITON
4	55.2260.0133	2	FT	SLEEVING, FIBERGLASS .133"ID
5	55.2260.0208	0.92	FT	SLEEVING, FIBERGLASS 0.208 ID
6	73.6614.0011	1.84	FT	WIRE, 14AWG 600V 600C MICA TAPE TAN UL5107
7	73.7101.0009	2.84	FT	WIRE, 14AWG 15KV 150C SILICONE 41/30 STRANDING

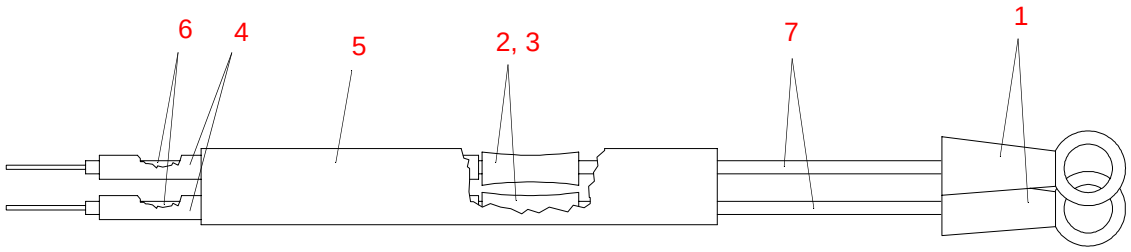


Figure 3-77: Bulb Socket to Ignitor Cable Assembly

Bulb Socket to Relay (Incand.) Cable Assembly

25.9661.1528 (VL2411/VL2412 ONLY) Rev 0

Refer to Figure 3-78.

No.	Item	Qty.	UM.	Description
1	52.8312.0001	2	EA	RECP, FASTON 1/4" 18-14 AWG INSULATED VO

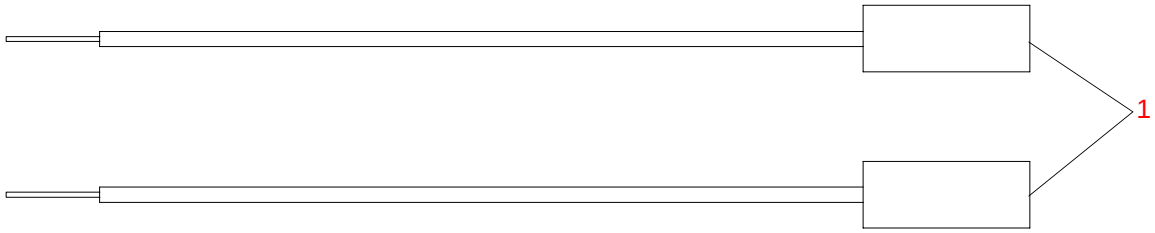


Figure 3-78: Bulb Socket to Relay (Incand.) Cable Assembly

Lamp Supply OT/NOT On Cable Assembly

25.9661.1531 Rev A

Refer to Figure 3-79.

No.	Item	Qty.	UM.	Description
1	52.6396.2202	1	EA	RECEPT, 2POS MTA100 W/POL TAB RED CLSD END
2	52.6396.2203	1	EA	RECEPT, 3POS MTA100 W/POL TAB RED CLSD END
3	52.6396.2204	1	EA	RECEPT, 4POS MTA100 W/POL TAB RED CLSD END
4	73.3522.0002	1.33	FT	WIRE, 22AWG 300V 105C PVC RED UL1569
5	73.3522.0005	1.33	FT	WIRE, 22AWG 300V 105C PVC GRN UL1569
6	73.3522.0009	1.67	FT	WIRE, 22AWG 300V 105C PVC WHT UL1569
7	73.3522.0010	1.67	FT	WIRE, 22AWG 300V 105C PVC BLK UL1569

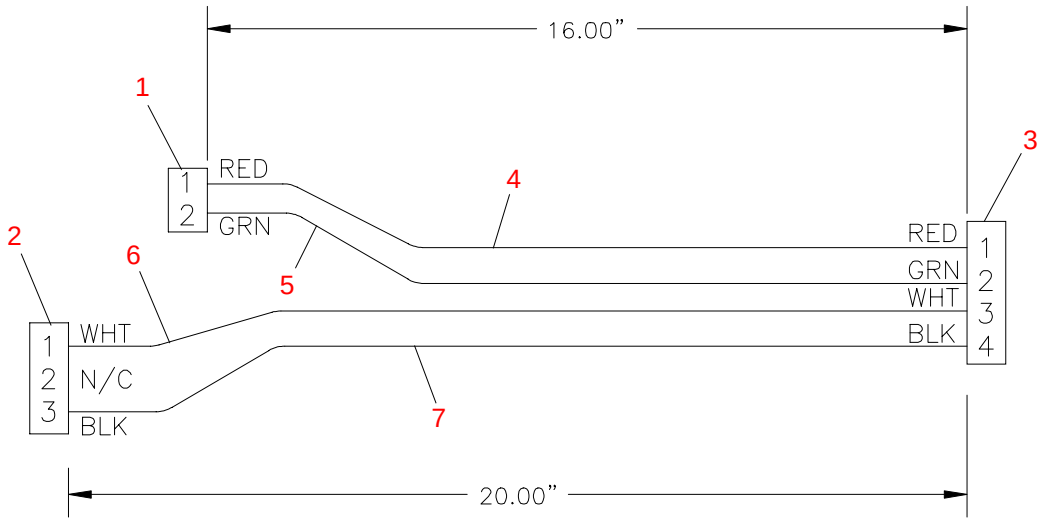


Figure 3-79: Lamp Supply OT/NOT On Cable Assembly

Data I/O Link Cable Assembly

25.9661.1532 Rev A

Refer to Figure 3-80.

No.	Item	Qty.	UM.	Description
1	52.6524.0005	2	EA	CONN, HOUSING 5POS RECEPTACLE
2	52.8346.0001	10	EA	CONTACT, 24-30AWG FEMALE CRIMP
3	55.2199.0001	0.10	FT	HEATSHRINK, 1/16" BLACK
4	55.2200.0001	0.08	FT	HEATSHRINK, 3/16" BLACK
5	73.7039.0001	0.33	FT	CBL, 22AWG STRND 4COND POLYPR INSUL

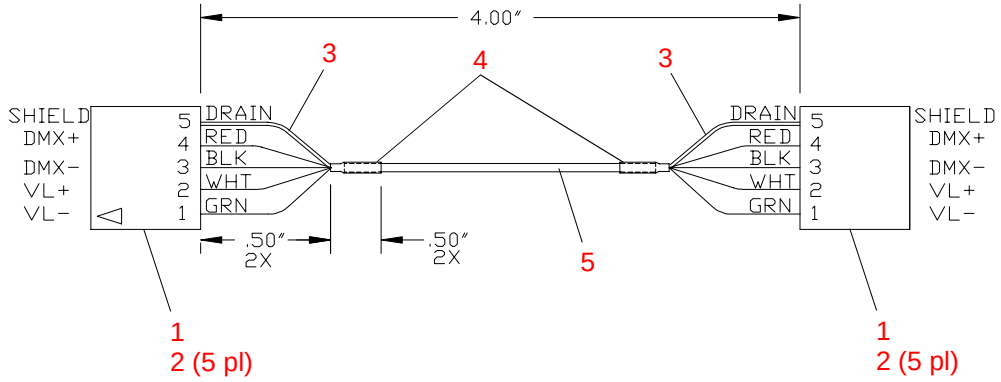


Figure 3-80: Data I/O Link Cable Assembly

Yoke Fan Power Cable Assembly

25.9661.1533 Rev 0

Refer to Figure 3-81.

No.	Item	Qty.	UM.	Description
1	52.6423.0003	2	EA	HOUSING, 3 POS MT RECEPT, 2MM CT 28-26 AWG
2	52.6484.0006	1	EA	RECEPT, 6POS DUAL ROW MINI-FIT JR
3	52.8333.2228	4	EA	CONTACT, 22-28AWG FEM REEL GOLD MFJR
4	73.3526.0002	2.10	FT	WIRE, 26AWG 300V 105C PVC RED UL1569
5	73.3526.0010	2.10	FT	WIRE, 26AWG 300V 105C PVC BLK UL1569

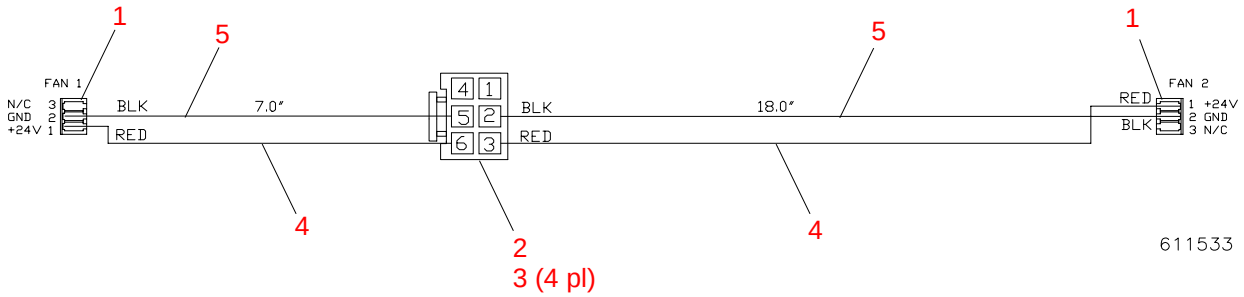


Figure 3-81: Yoke Fan Power Cable Assembly

DC Output Cable Assembly

25.9661.1543 Rev 0

Refer to Figure 3-82.

No.	Item	Qty.	UM.	Description
1	52.6464.0002	1	EA	CONN HOUSING, SL-156 2 POS
2	52.6484.0004	1	EA	RECEPT, 4 POS DUAL ROW MINI-FIT JR
3	52.8298.0002	3	EA	TERM, WIRE PIN 16-14AWG
4	52.8323.0001	2	EA	CONTACT, CRIMP 18-22AWG SL-156
5	52.8333.0001	2	EA	CONTACT, FEMALE 18-20 AWG REEL HCS
6	73.3518.0002	2.3	ft	WIRE, 18AWG 300V 105C PVC RED UL1569
7	73.3518.0010	2.3	ft	WIRE, 18AWG 300V 105C PVC BLK UL1569

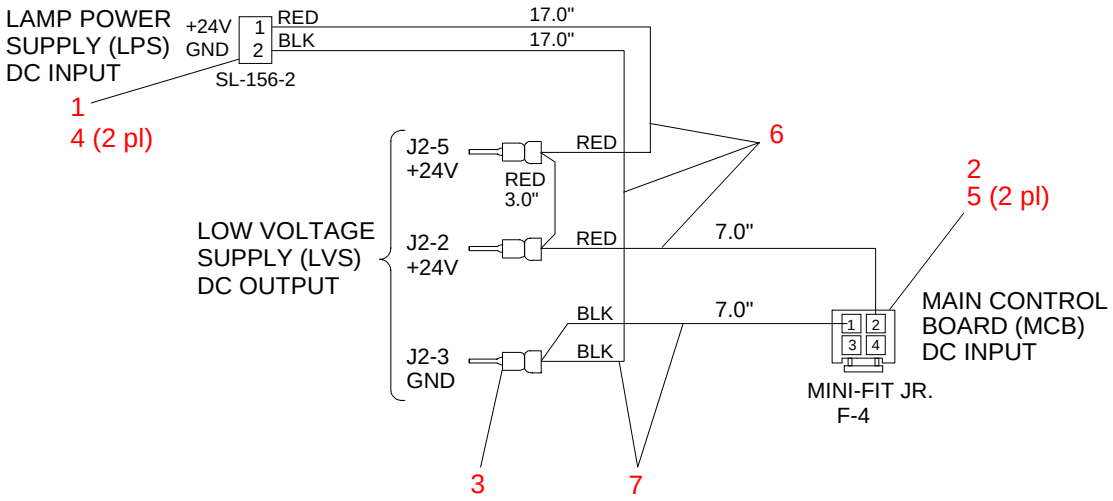


Figure 3-82: DC Output Cable Assembly

Lamp Supply Harness - 2400 Cable Assembly

25.9661.1544.01 (VL2413/VL2414/VL2415/VL2416) Rev 0
25.9661.1544.02 (VL2411/VL2412) Rev 0

Refer to Figure 3-83.

No.	Item	Qty.	UM.	Description
1	25.9661.1518	1	EA	CABLE ASSY, LAMP SUPPLY CONTROL
2	25.9661.1531	1	EA	CABLE ASSY, LAMP SUPPLY OT/NOT ON **(VL2413/VL2414/VL2415/VL2416 ONLY)**
3	25.9661.1543	1	EA	CABLE ASSY, DC OUTPUT-VLT130
4	55.2186.0001	2	EA	CABLE TIE, .10" WD 4.00" LG SMALL
5	55.6699.0003	0.67	ft	SLEEVING, 1/2" NOM.DIA. POLY EXP BRAIDED

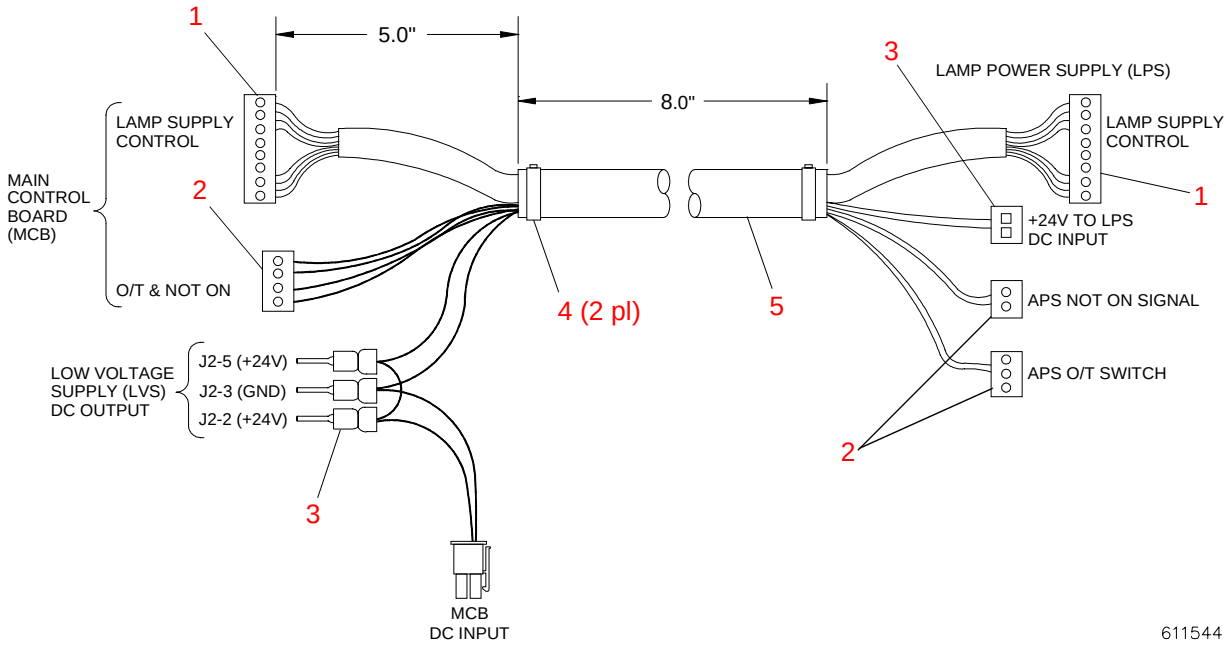


Figure 3-83: Lamp Supply Harness - 2400 Cable Assembly

APPENDIX A.

Technical Bulletins

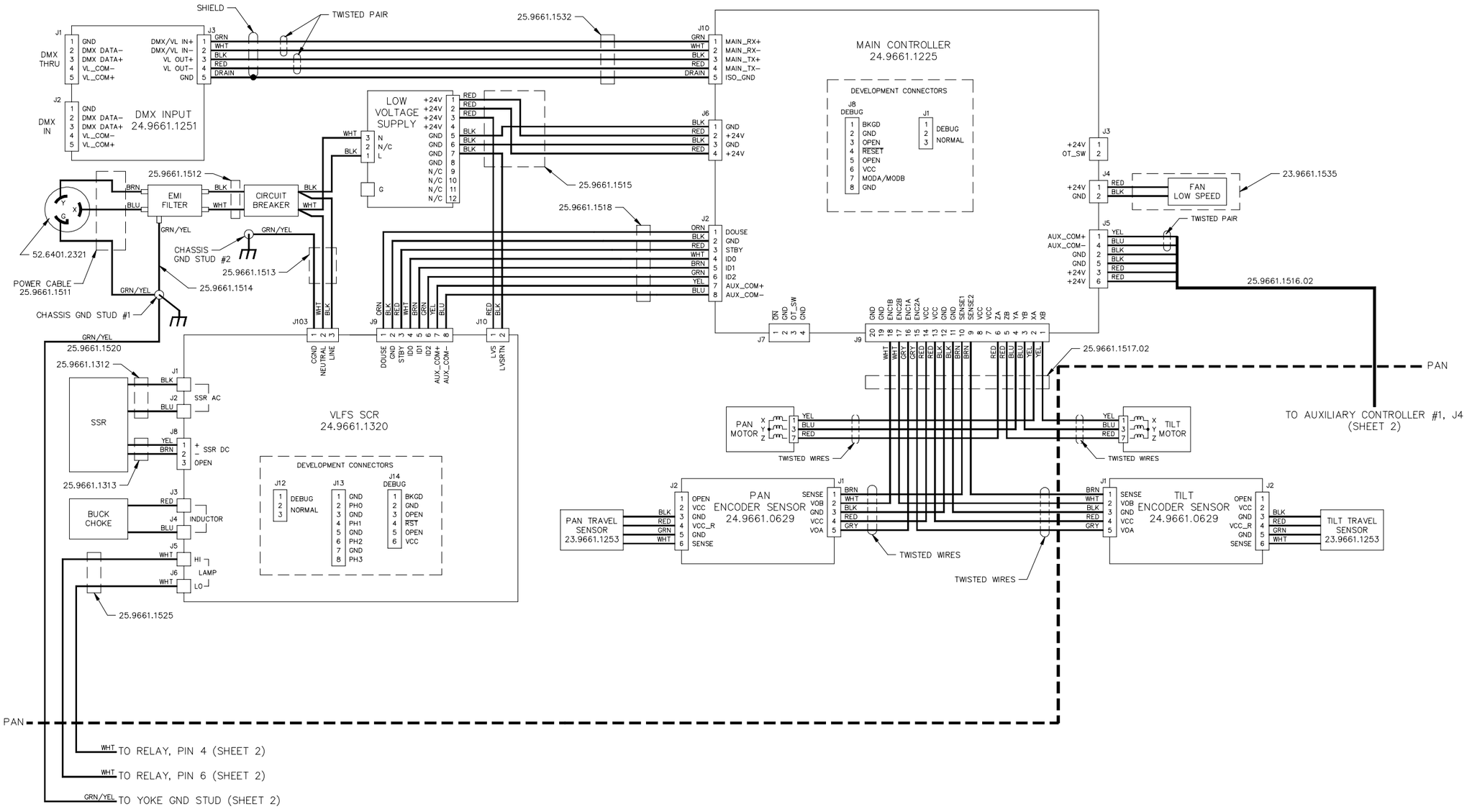
VL2400 Series Luminaires Technical Bulletins

The following table identifies the current technical bulletins associated with the VL2400 Series wash luminaires.

Technical Bulletin	Description	Associated Luminaire
S2K-002	Removing resistor from ballast PCB.	VL2413, VL2414
S2K-003A	Lamp power supply improvements.	VL2413, VL2414, VL2415, VL2416
S2K-004	Removing heatsink pins on Main Controller PCB.	VL2411, VL2412, VL2413, VL2414, VL2415, VL2416
S2K-005	Improvements to the choke insulation.	VL2413, VL2414, VL2415, VL2416
S2K-006	Removing plastic bumpers from pan and tilt assemblies.	VL2411, VL2412, VL2413, VL2414, VL2415, VL2416
S2K-008	Replacing diodes on lamp power supplies.	VL2413, VL2414, VL2415, VL2416
S2K-014	Modifying wire harness for installation of new style power supply.	VL2411, VL2412, VL2413, VL2414, VL2415, VL2416
S2K-015	Main Controller PCB jumper configuration.	VL2416
S2K-016	Installation of capacitors for hot restarts.	VL2411, VL2412, VL2413, VL2414, VL2415, VL2416
S2K-017	Installation of washers for vertical hang positions.	VL2411, VL2412, VL2413, VL2414, VL2415, VL2416
S2K-018	Adding stabilizer brackets.	VL2411, VL2412, VL2413, VL2414, VL2415, VL2416
S2K-019	Pan bolt modification.	VL2411, VL2412, VL2413, VL2414, VL2415, VL2416

Technical Bulletin	Description	Associated Luminaire
S2K-021	Changing two diodes on ignitor board.	VL2413, VL2414, VL2415, VL2416
S2K-023	Auxiliary PCB capacitor change.	VL2411, VL2412, VL2413, VL2414, VL2415, VL2416
V24-001	Replace bulb socket to ignitor cable.	VL2416
V24-002	Replace motor harness on select VL2416 luminaires.	VL2416
V24-003	Installing longer screws and washers in the beam spreader assembly	VL2412, VL2414, VL2416
V24-004	Calibrating color.	VL2411/VL2412/ VL2413/VL2414/ VL2415/VL2416
V24-005A	Installing flat UV glass.	VL2415/VL2416
V24-007	Replacing transformer onpower supply.	VL2411/VL2412/ VL2413/VL2414/ VL2415/VL2416
V24-009	Replacing thermal switch.	VL2416
V24-010	Crank for color calibration.	VL2412, VL2414, VL2416
V24-011A	Belt tension bracket.	VL2412, VL2414, VL2416
V24-012	Color crank assembly.	VL2411/VL2412/ VL2413/VL2414/ VL2415/VL2416

VL2411 Wire Diagram

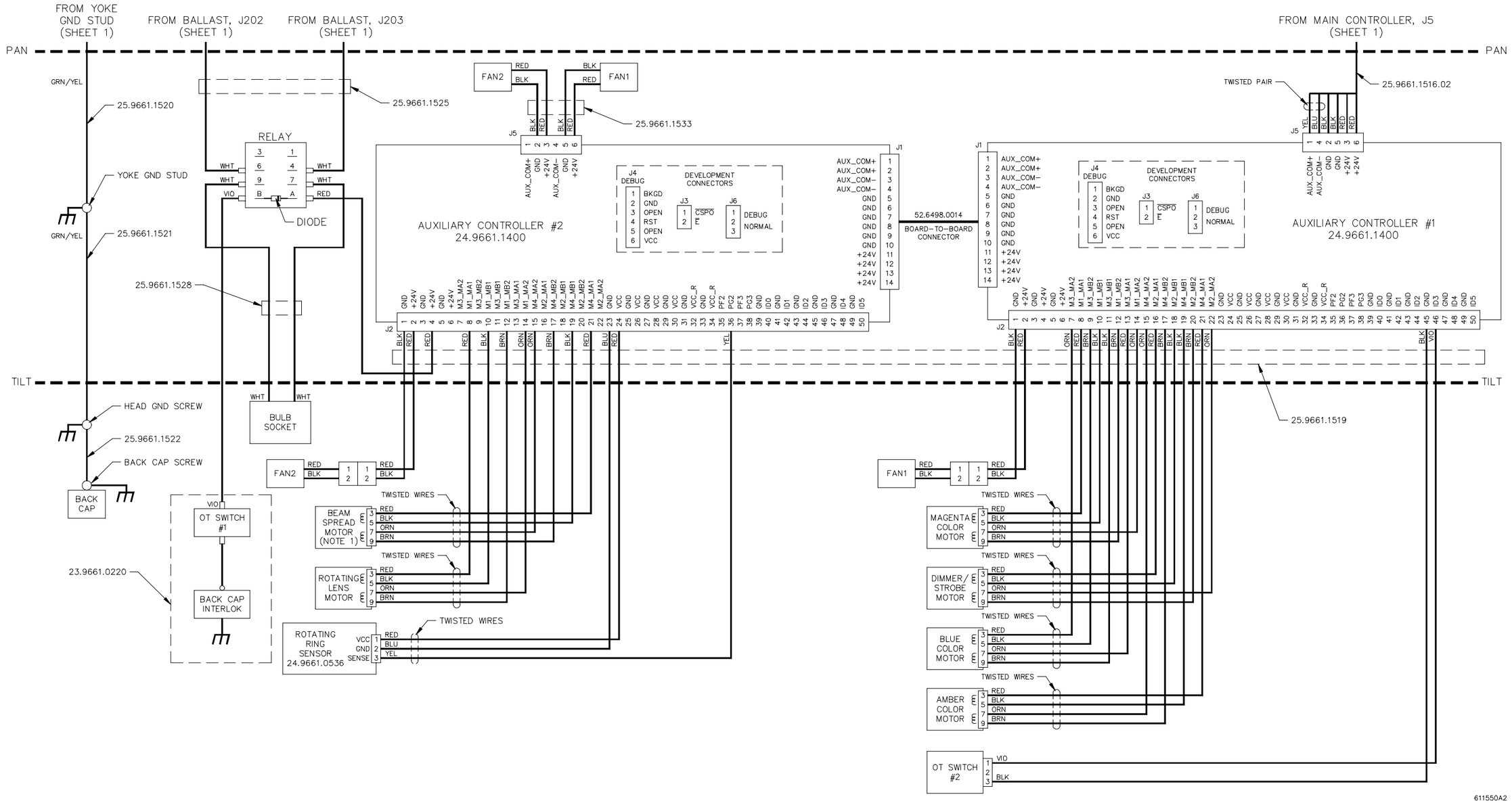


NOTES: UNLESS OTHERWISE SPECIFIED

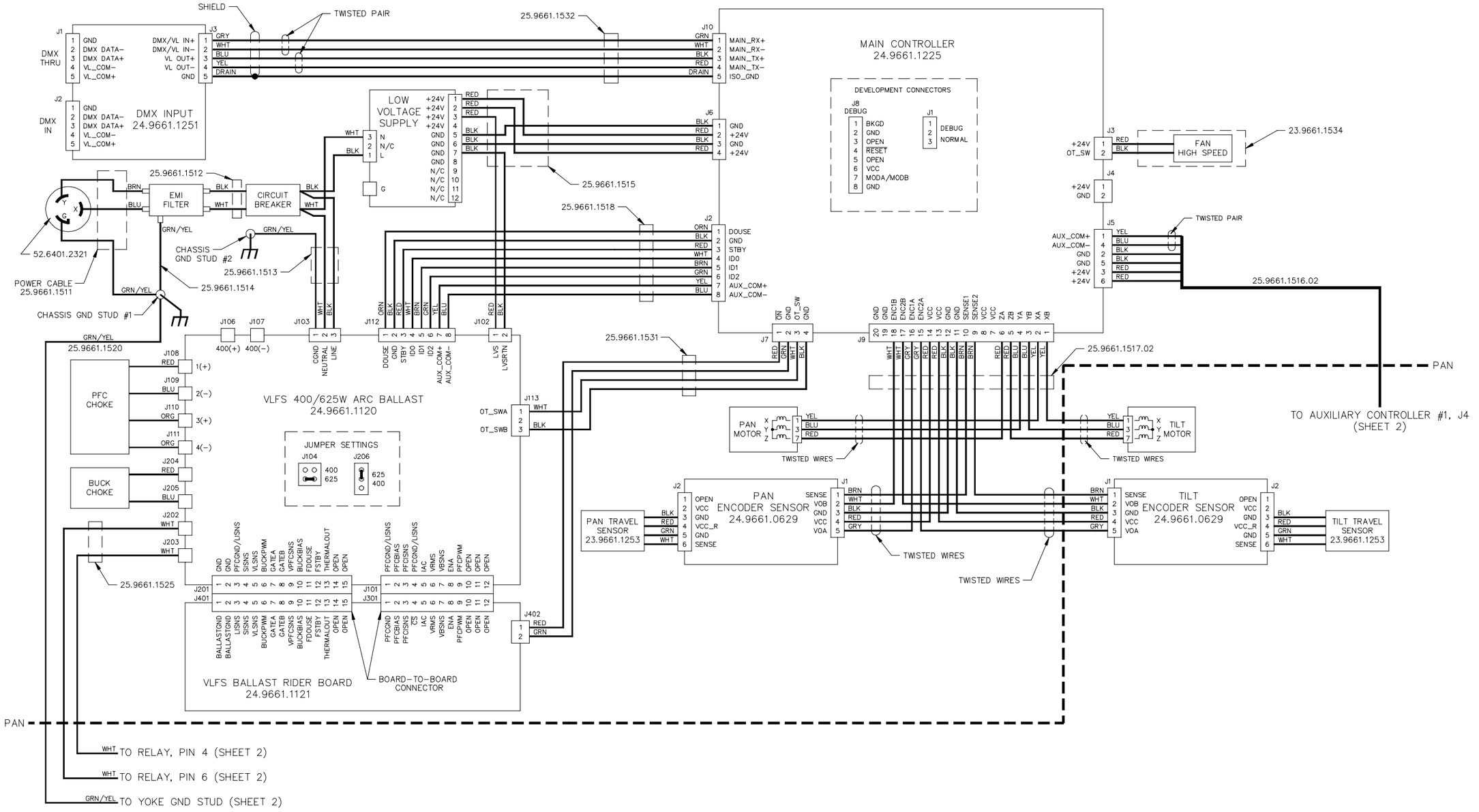
1. BEAM SPREAD MOTOR IS NOT USED FOR MODEL VL2411.

611550A1

VL2412 Wire Diagram



VL2413 Wire Diagram

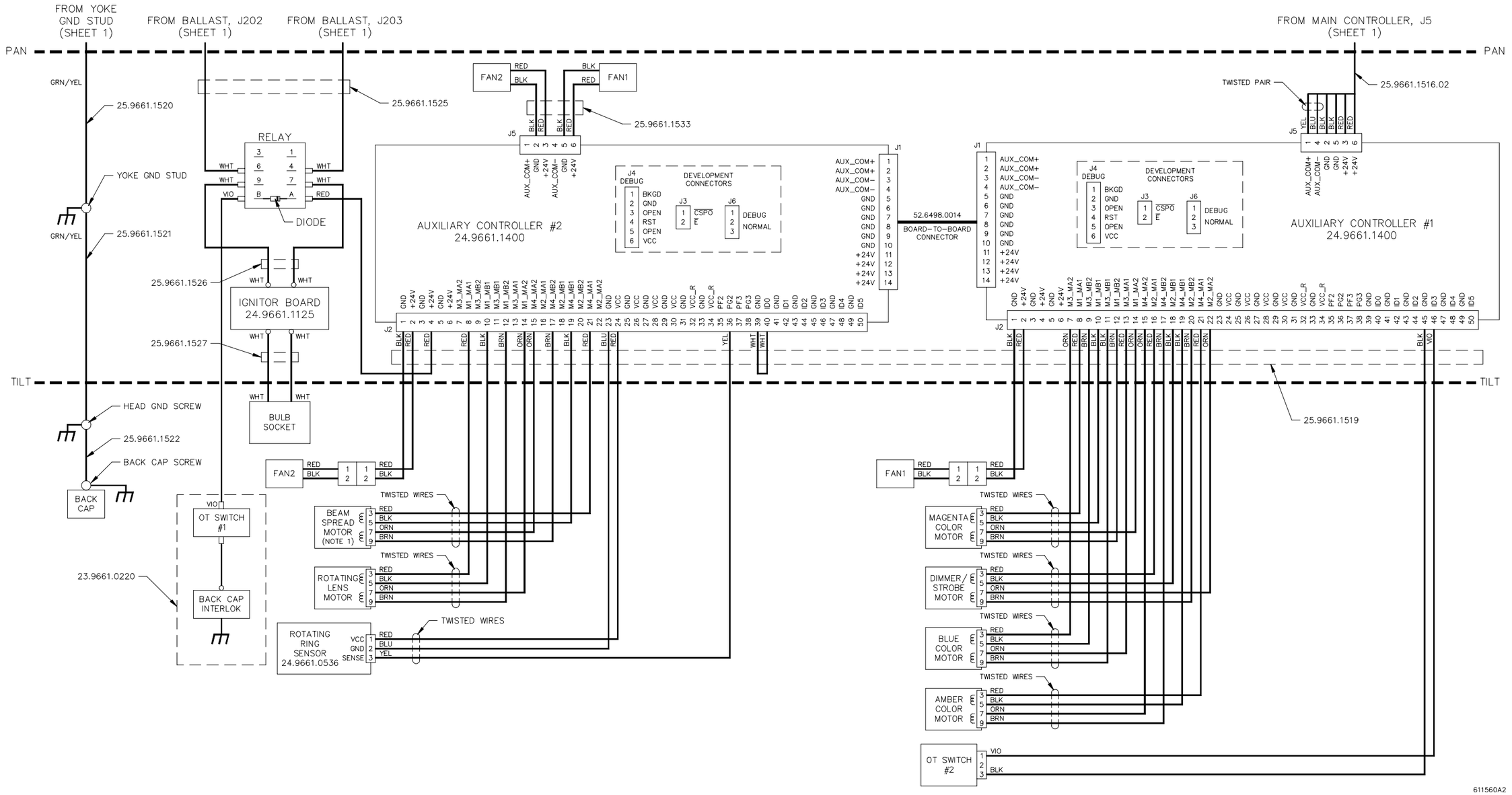


NOTES: UNLESS OTHERWISE SPECIFIED

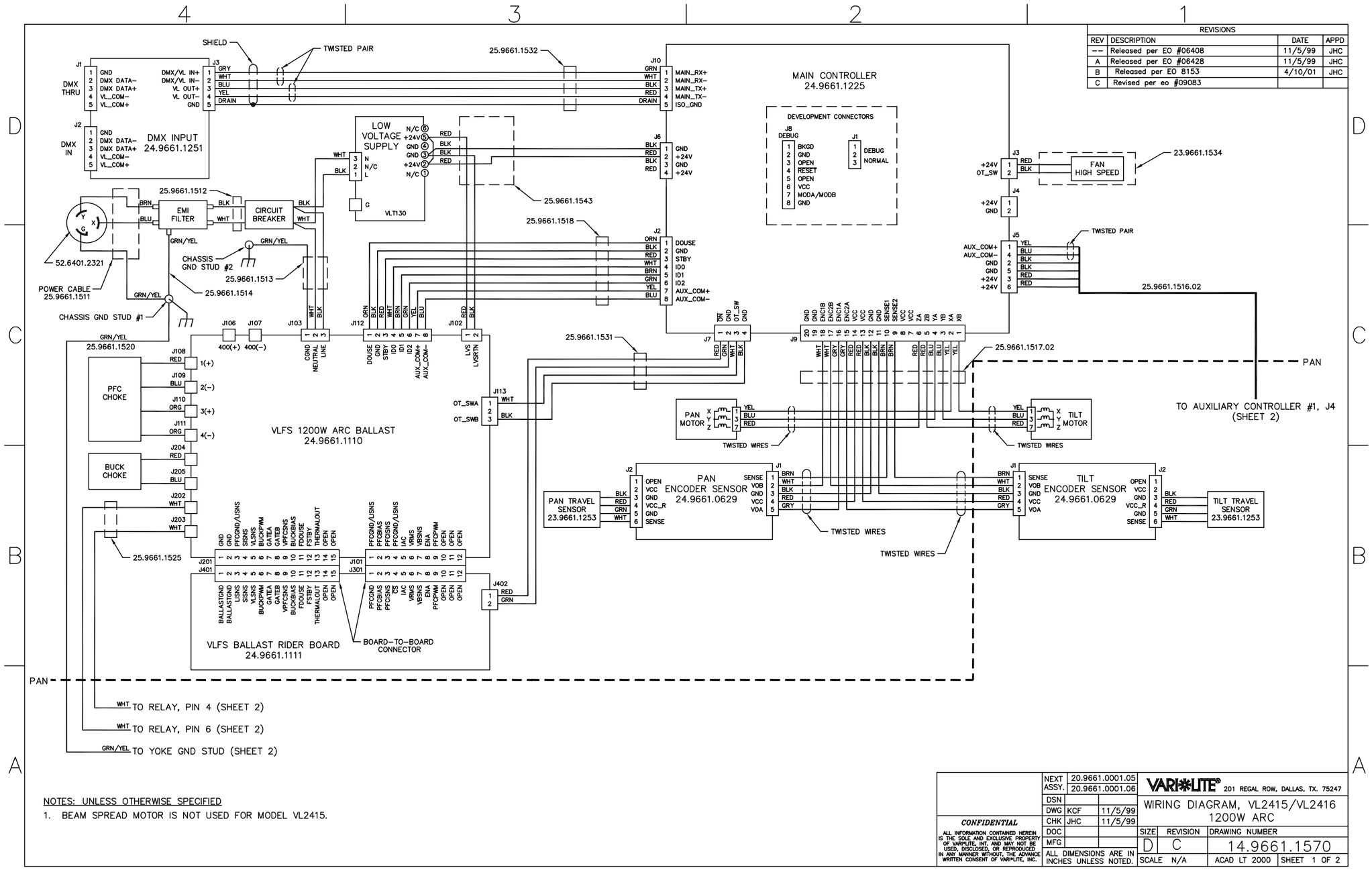
1. BEAM SPREAD MOTOR IS NOT USED FOR MODEL 2413.

611560A1

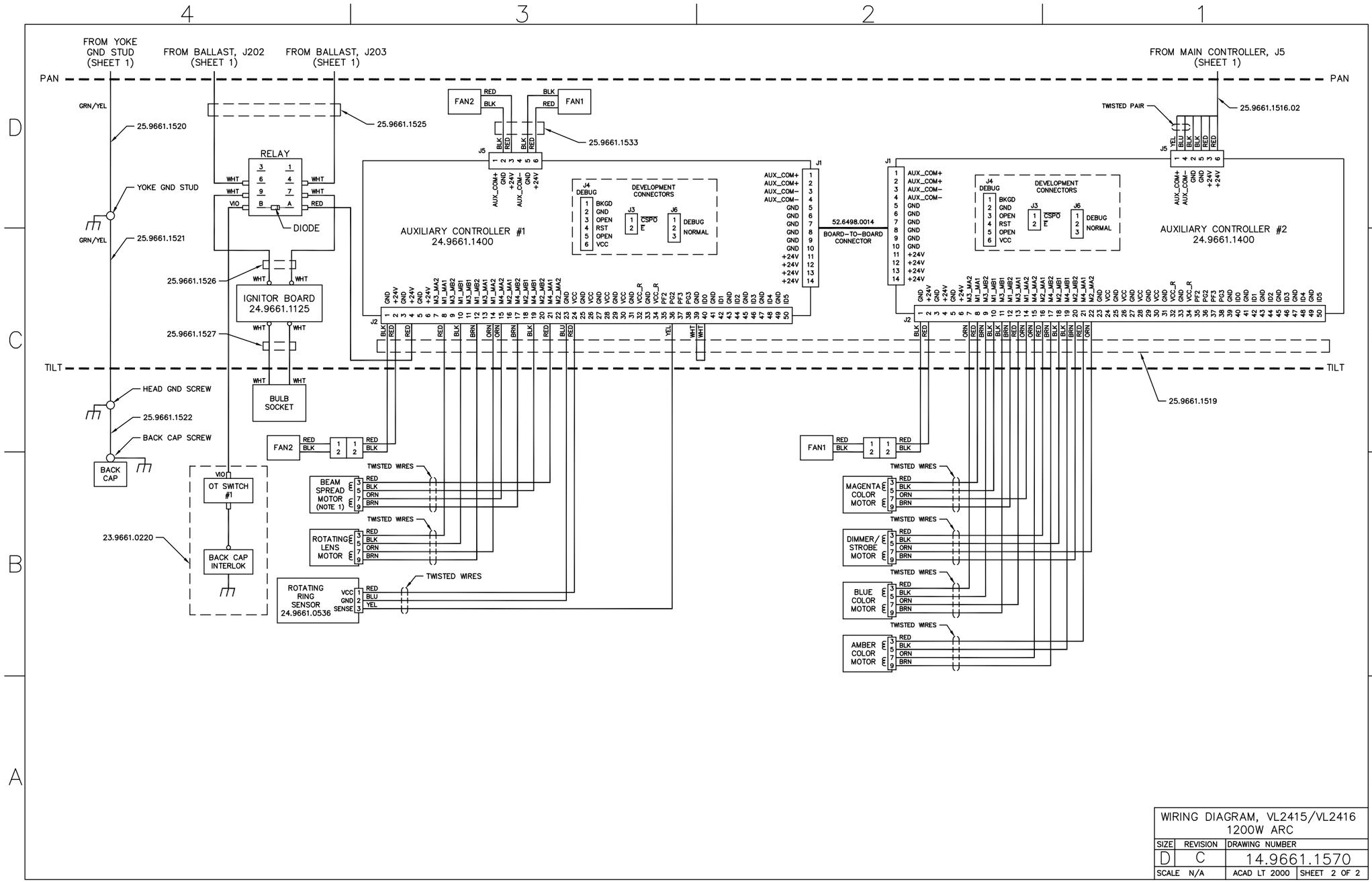
VL2414 Wire Diagram



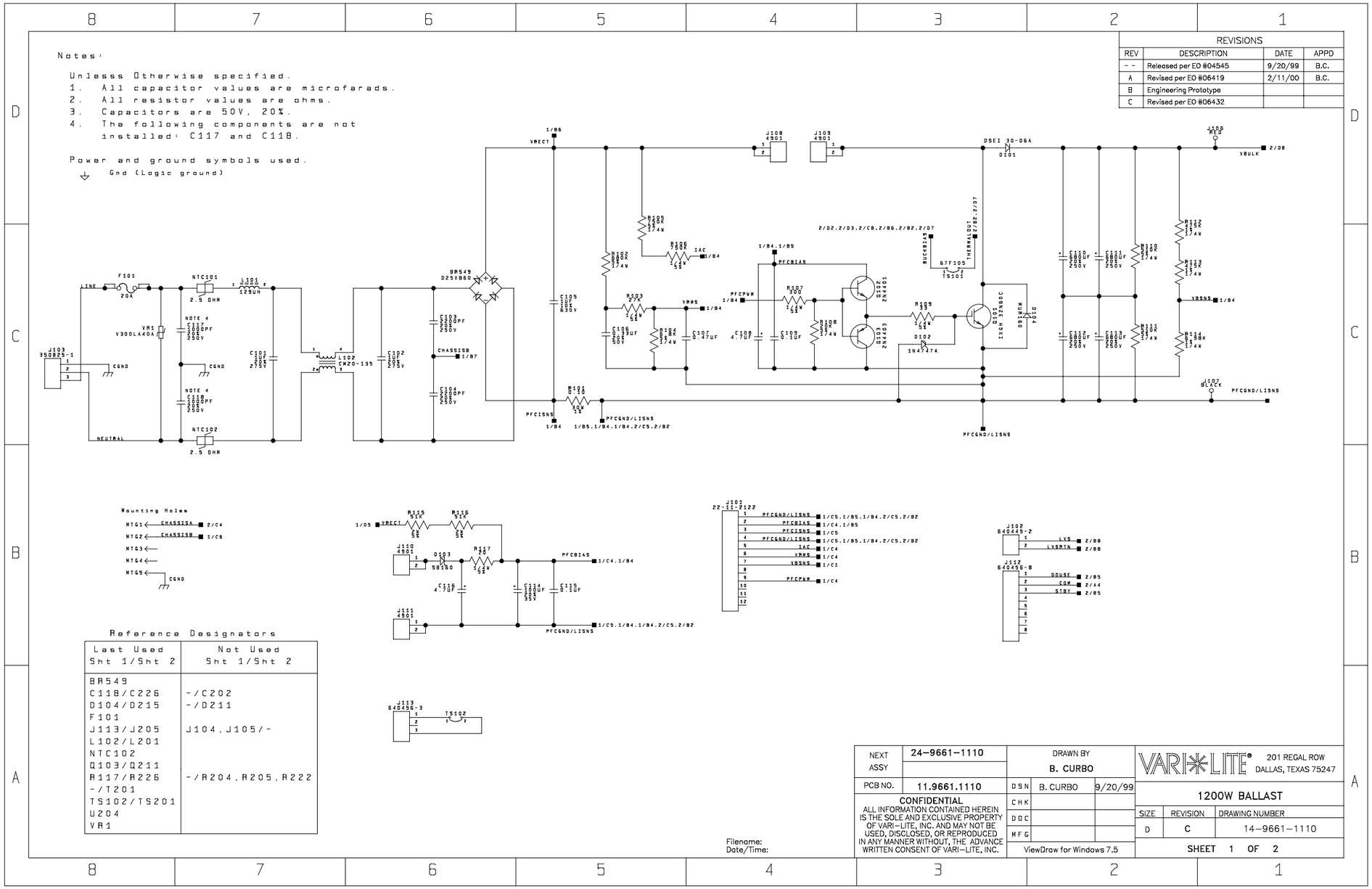
VL2415/VL2416 Wire Diagram (Sheet 1 of 2)



VL2415/VL2416 Wire Diagram (Sheet 2 of 2)



1200W Ballast Schematic


Notes:
Unless Otherwise specified.
1. All capacitor values are microfarads.
2. All resistor values are ohms.
3. Capacitors are 50V, 20%.
4. The following components are not installed: C117 and C118.
Power and ground symbols used.
Gnd (Logic ground)
REVISIONS
REV | DESCRIPTION | DATE | APPD
-- | Released per EO #04545 | 9/20/99 | B.C.
A | Revised per EO #06419 | 2/11/00 | B.C.
B | Engineering Prototype
C | Revised per EO #06432
Mounting Holes
Reference Designators
Last Used Sht 1/Sht 2 | Not Used Sht 1/Sht 2
BR549 | -/C202 | -/D211 | J104,J105/- | -/R204,R205,R222 | -/T201 | TS102/TS201 | U204 | VR1
C118/C226 | D104/D215 | F101 | J113/J205 | L102/L201 | NTC102 | Q103/Q211 | R117/R226
NEXT ASSY 24-9661-1110
PCB NO. 11.9661.1110
DRAWN BY B. CURBO
DSN B. CURBO 9/20/99
CHK
DDC
MFG
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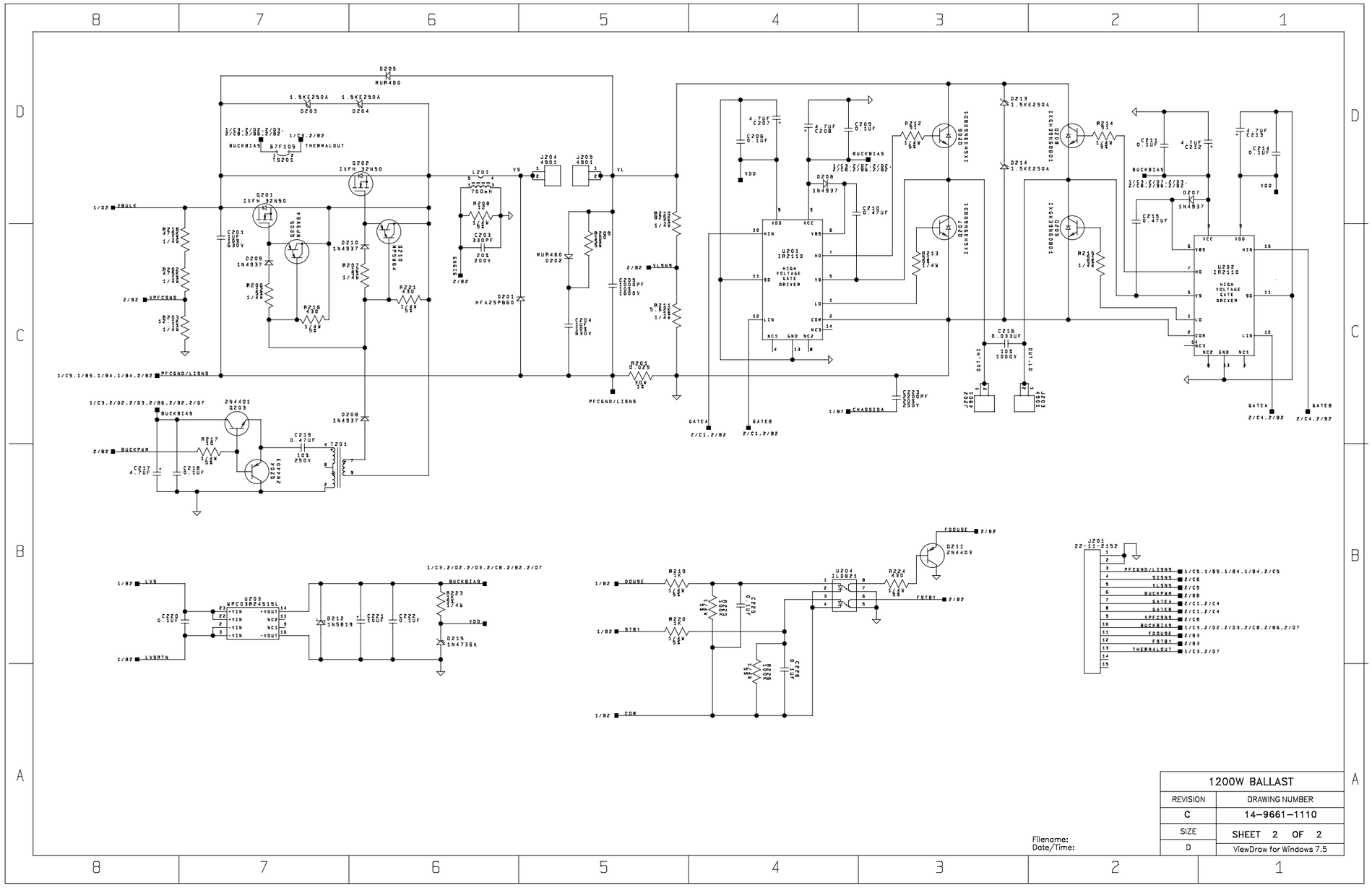
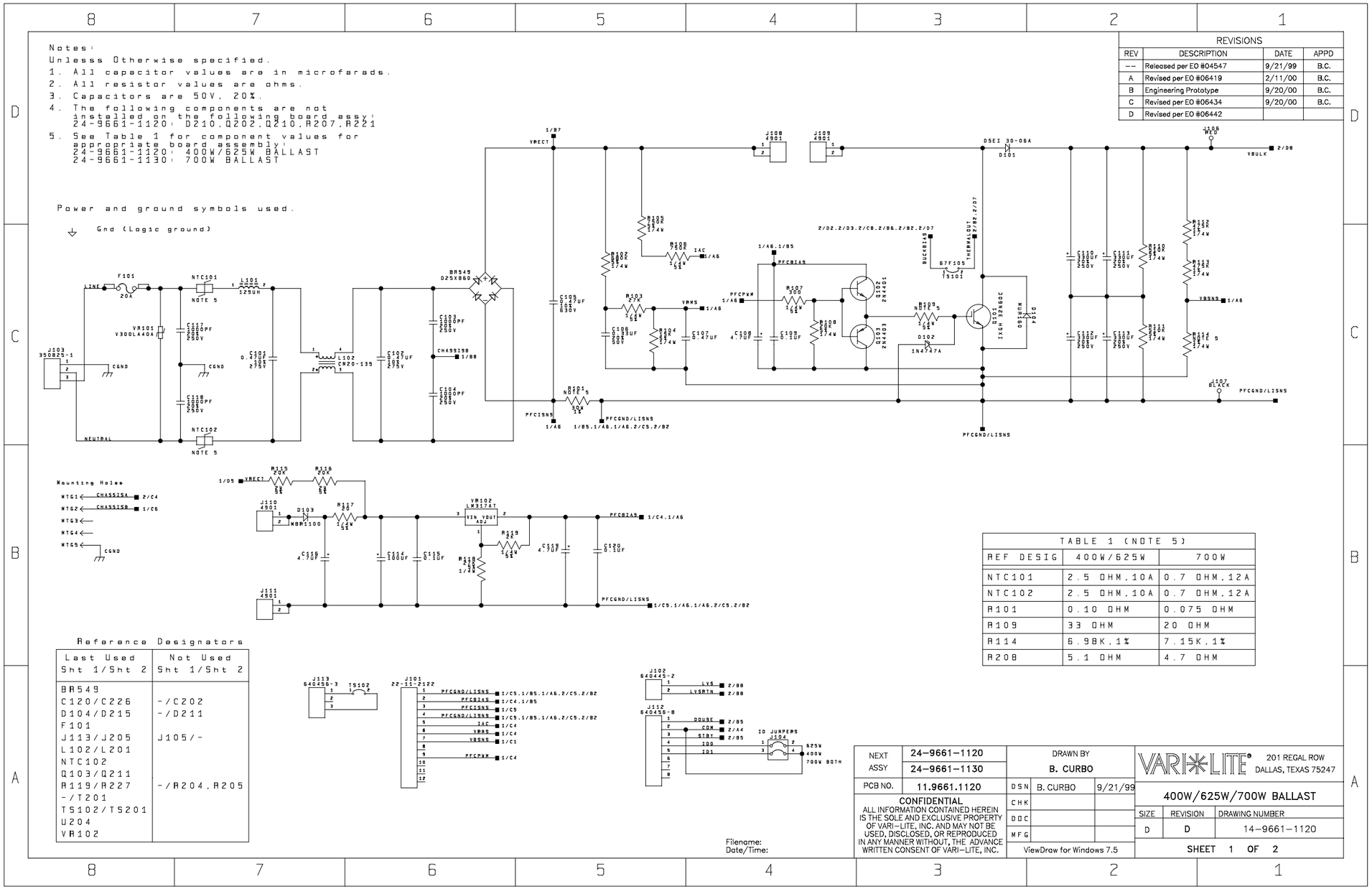
ViewDraw for Windows 7.5
VARI*LITE® 201 REGAL ROW DALLAS, TEXAS 75247
1200W BALLAST
SIZE | REVISION | DRAWING NUMBER
D | C | 14-9661-1110
SHEET 1 OF 2
Filename:
Date/Time:

1200W Ballast Schematic (cont.)



400W/625W/700W Ballast Schematic


Notes:
Unless Otherwise specified.
1. All capacitor values are in microfarads.
2. All resistor values are ohms.
3. Capacitors are 50V, 20%.
4. The following components are not installed on the following board assy:
24-9661-1120: D210,Q202,Q210,R207,R221
5. See Table 1 for component values for appropriate board assembly:
24-9661-1120: 400W/625W BALLAST
24-9661-1130: 700W BALLAST
Power and ground symbols used.
Gnd (Logic ground)
REVISIONS
REV | DESCRIPTION | DATE | APPD
-- | Released per EO #04547 | 9/21/99 | B.C.
A | Revised per EO #06419 | 2/11/00 | B.C.
B | Engineering Prototype | 9/20/00 | B.C.
C | Revised per EO #06434 | 9/20/00 | B.C.
D | Revised per EO #06442
Mounting Holes
MTG1 CHASSISA 2/C4
MTG2 CHASSISB 1/C6
MTG3
MTG4
MTG5 CGND
Reference Designators
Last Used Sht 1/Sht 2 | Not Used Sht 1/Sht 2
BR549 |
C120/C226 | -/C202
D104/D215 | -/D211
F101 |
J113/J205 | J105/-
L102/L201 |
NTC102 |
Q103/Q211 |
R119/R227 | -/R204,R205
-/T201 |
TS102/TS201 |
U204 |
VR102 |
TABLE 1 (NOTE 5)
REF DESIG | 400W/625W | 700W
NTC101 | 2.5 OHM,10A | 0.7 OHM,12A
NTC102 | 2.5 OHM,10A | 0.7 OHM,12A
R101 | 0.10 OHM | 0.075 OHM
R109 | 33 OHM | 20 OHM
R114 | 6.98K,1% | 7.15K,1%
R208 | 5.1 OHM | 4.7 OHM
NEXT ASSY 24-9661-1120 24-9661-1130
PCB NO. 11.9661.1120
DRAWN BY B. CURBO
DSN B. CURBO 9/21/99
CHK
DOC
MFG
ViewDraw for Windows 7.5
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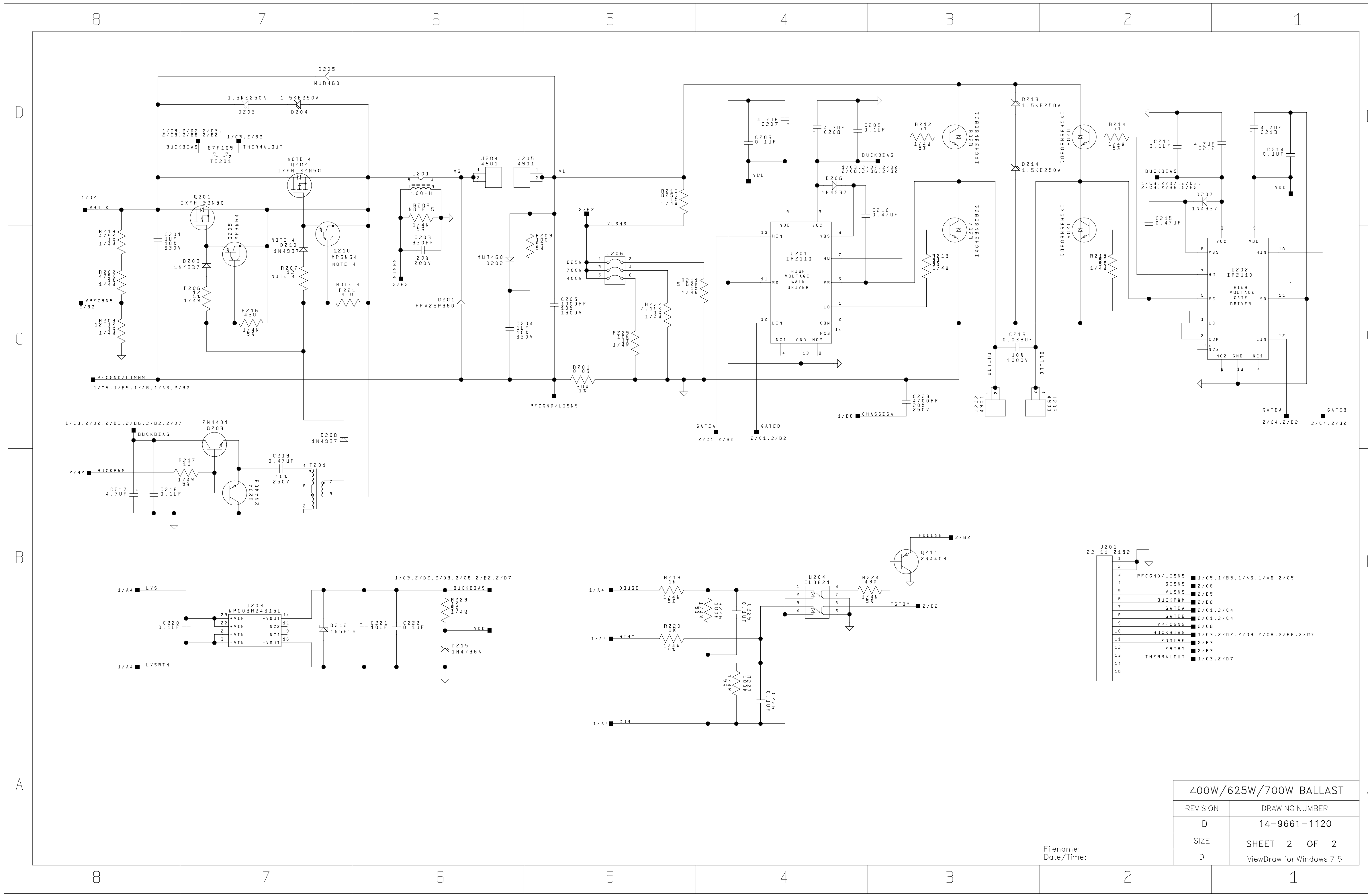
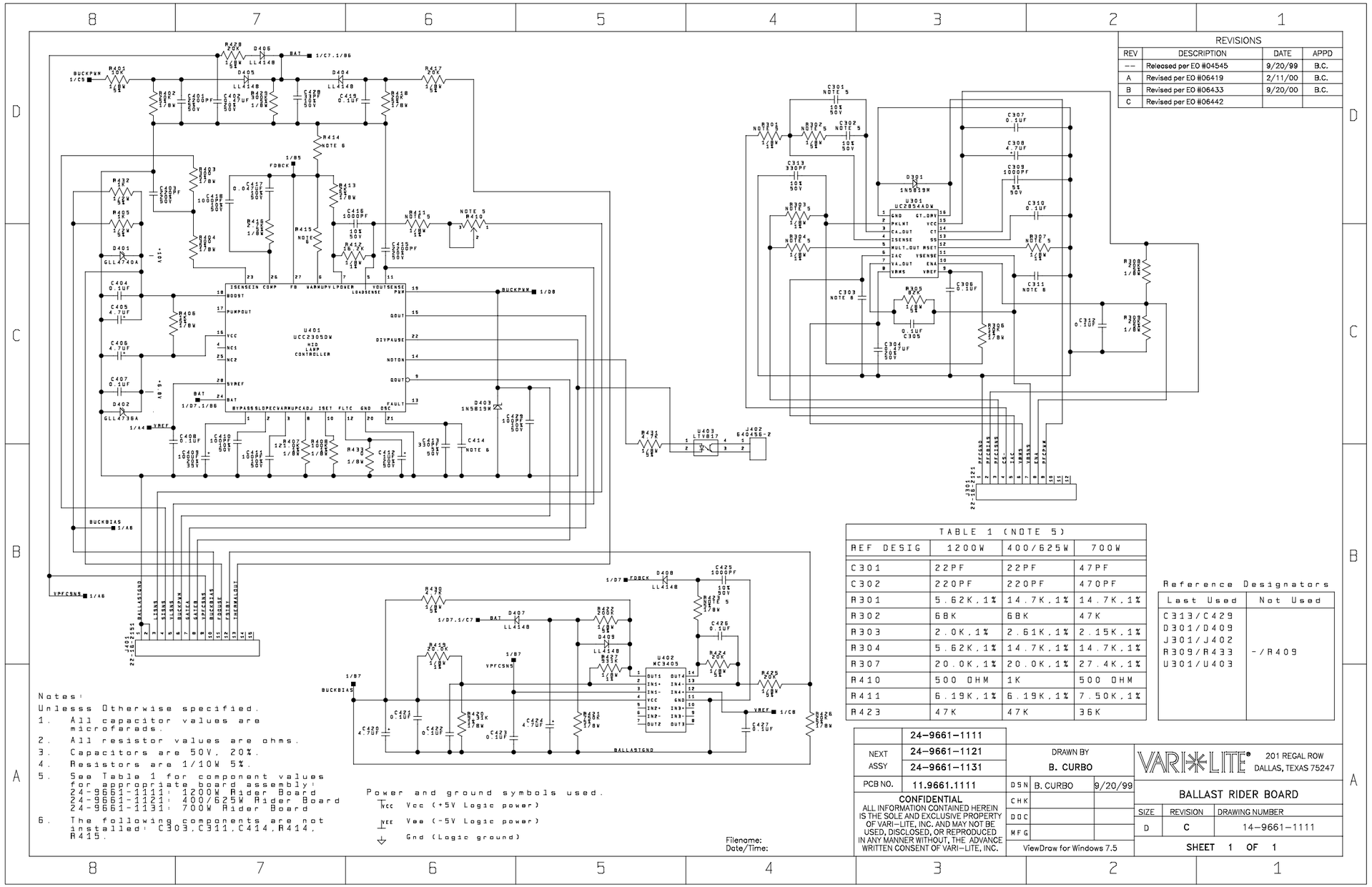
VARI∗LITE® 201 REGAL ROW DALLAS, TEXAS 75247
400W/625W/700W BALLAST
SIZE D | REVISION D | DRAWING NUMBER 14-9661-1120
SHEET 1 OF 2
Filename:
Date/Time:

400W/625W/700W Ballast Schematic (cont.)


D205 MUR460
1.5KE250A D203
1.5KE250A D204
BUCKBIAS
67F105 TS201
THERMALOUT
Q202 IXFH 32N50
Q201 IXFH 32N50
VBULK
R218 475K 1% 1/4W
C201 1UF 10% 630V
Q205 MPSW64
D209 1N4937
D210 1N4937
R207 12
Q210 MPSW64
R221 430
R206 12 5% 1/4W
R216 430 1/4W 5%
R202 475K 1% 1/4W
VPFCSNS
R203 12.1K 1% 1/4W
PFCGND/LISNS
L201 100mH
R208 NOTE 5 1/4W 5%
C203 330PF 20% 200V
SISNS
D201 HFA25PB60
MUR460 D202
R209 100 5% 5W
C204 1UF 10% 630V
J204 4901
J205 4901
VS
VL
C205 1000PF 10% 1600V
R201 0.05 30W 1%
J206
625W
700W
400W
VLSNS
R210 825K 1% 1/4W
R211 5.62K 1% 1/4W
R222 7.15K 1% 1/4W
R225 10K 1% 1/4W
U201 IR2110 HIGH VOLTAGE GATE DRIVER
C206 0.1UF
C207 4.7UF
C208 4.7UF
C209 0.1UF
D206 1N4937
C210 0.47UF
VDD
R212 51 1/4W 5%
Q206 IXGH39N60BD1
Q207 IXGH39N60BD1
R213 51 1/4W
D213 1.5KE250A
D214 1.5KE250A
C216 0.033UF 10% 1000V
OUT_HI
OUT_LO
J202 4901
J203 4901
C223 4700PF 20% 250V
CHASSISA
GATEA
GATEB
Q208 IXGH39N60BD1
Q209 IXGH39N60BD1
R214 51 1/4W 5%
R215 51 1/4W
C211 0.1UF
C212 4.7UF
C213 4.7UF
C214 0.1UF
D207 1N4937
C215 0.47UF
U202 IR2110 HIGH VOLTAGE GATE DRIVER
Q203 2N4401
BUCKPWM
R217 10 1/4W 5%
Q204 2N4403
C217 4.7UF
C218 0.1UF
C219 0.47UF 10% 250V
T201
D208 1N4937
LVS
LVSRTN
C220 0.1UF
U203 WPC03R24S15L
D212 1N5819
C221 10UF
C222 0.1UF
R223 1K 5% 1/4W
D215 1N4736A
DOUSE
STBY
COM
R219 1K 1/4W 5%
R220 1K 1/4W 5%
R226 100K 1/4W 5%
C225 0.1UF
R227 100K 1/4W 5%
C226 0.1UF
U204 ILD621
R224 430 1/4W 5%
Q211 2N4403
FDOUSE
FSTBY
J201 22-11-2152
PFCGND/LISNS 1/C5.1/B5.1/A6.1/A6.2/C5
SISNS 2/C6
VLSNS 2/D5
BUCKPWM 2/B8
GATEA 2/C1.2/C4
GATEB 2/C1.2/C4
VPFCSNS 2/C8
BUCKBIAS 1/C3.2/D2.2/D3.2/C8.2/B6.2/D7
FDOUSE 2/B3
FSTBY 2/B3
THERMALOUT 1/C3.2/D7
400W/625W/700W BALLAST
REVISION D
DRAWING NUMBER 14-9661-1120
SIZE D
SHEET 2 OF 2
ViewDraw for Windows 7.5
Filename:
Date/Time:

Ballast Rider Schematic



REVISIONS			
REV	DESCRIPTION	DATE	APPD
--	Released per EO #04545	9/20/99	B.C.
A	Revised per EO #06419	2/11/00	B.C.
B	Revised per EO #06433	9/20/00	B.C.
C	Revised per EO #06442		

TABLE 1 (NOTE 5)			
REF DESIG	1200W	400/625W	700W
C301	22PF	22PF	47PF
C302	220PF	220PF	470PF
R301	5.62K,1%	14.7K,1%	14.7K,1%
R302	68K	68K	47K
R303	2.0K,1%	2.61K,1%	2.15K,1%
R304	5.62K,1%	14.7K,1%	14.7K,1%
R307	20.0K,1%	20.0K,1%	27.4K,1%
R410	500 OHM	1K	500 OHM
R411	6.19K,1%	6.19K,1%	7.50K,1%
R423	47K	47K	36K

Reference Designators	
Last Used	Not Used
C313/C429	
D301/D409	
J301/J402	
R309/R433	-/R409
U301/U403	

	24-9661-1111
NEXT ASSY	24-9661-1121
	24-9661-1131
PCB NO.	11.9661.1111

DRAWN BY B. CURBO

DSN	B. CURBO	9/20/99
CHK		
DOC		
MFG		

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VARI∗LITE® 201 REGAL ROW DALLAS, TEXAS 75247

BALLAST RIDER BOARD

SIZE	REVISION	DRAWING NUMBER
D	C	14-9661-1111

SHEET 1 OF 1

Auxiliary Controller Schematic

REVISIONS			
REV	DESCRIPTION	DATE	APPD
--	Released per EO #06402	9/29/99	T.W.
A	Revised per EO #06411	1/13/00	T.W.
B	Revised per EO #06440		

Notes:

Unlesss Otherwise specified.
1. All capacitor values are microfarads.
2. All resistor values are ohms.
3. Capacitors are 50V, 20%.
4. Resistors are 1/10W 5%.

Power and ground symbols used.

Vcc (+5V Logic power)

Vee (-5V Logic power)

Gnd (Logic ground)

Reference Designators

Last Used	Not Used
C38	
D2	
J6	J3
L1	
R48	
U12	
VR1	
Y1	

Filename: VLFS_AUX
Date/Time: 10-25-2000_10:55

NEXT ASSY	24-9661-1400	DRAWN BY	T.E. WALSH
PCB NO.	11.9661.1400	DSN	T.W. 9/29/99
		CHK	
		DOC	
		MFG	

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ViewDraw for Windows 7.5

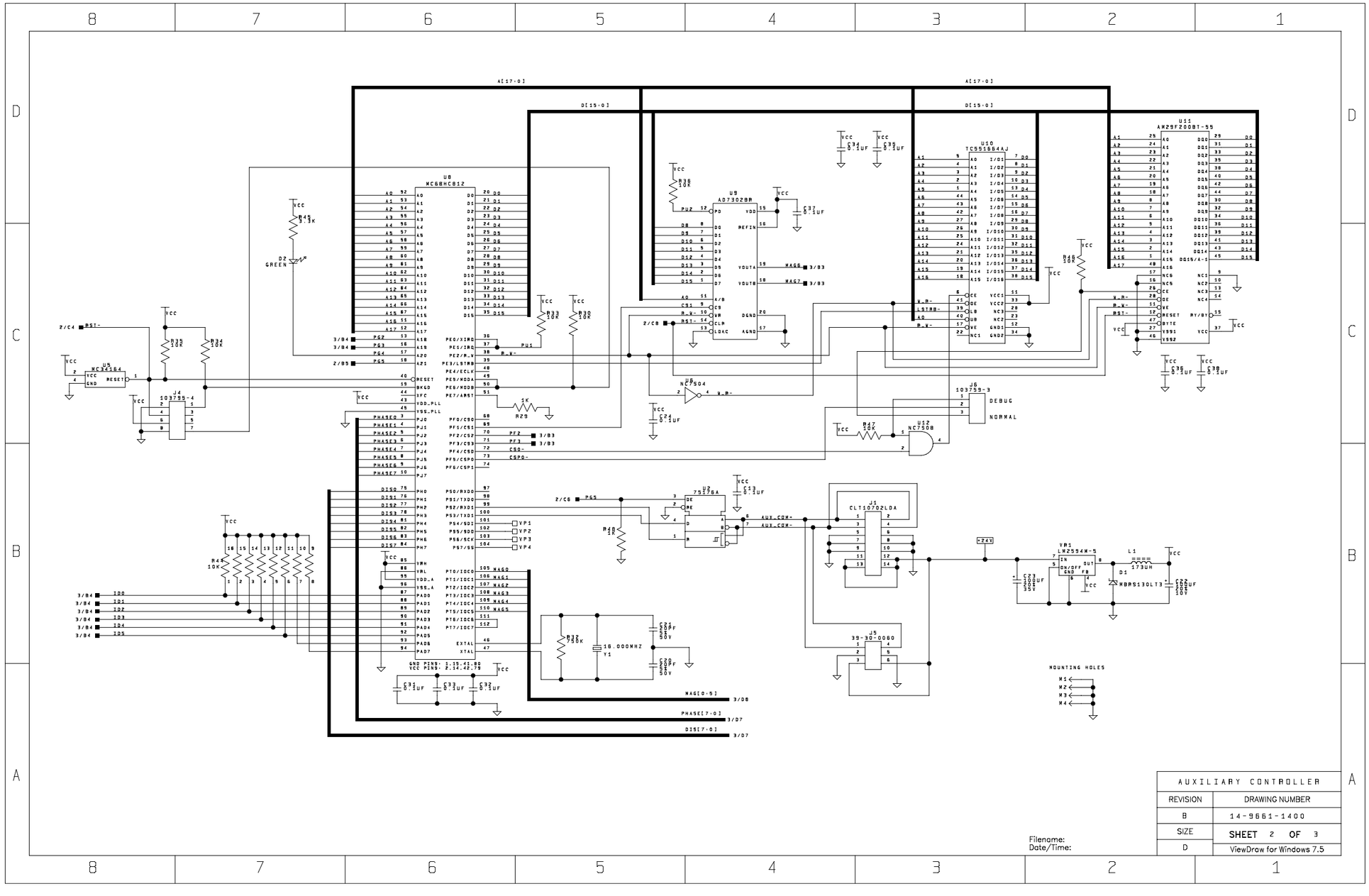
VARI*LITE® 201 REGAL ROW DALLAS, TEXAS 75247

AUXILIARY CONTROLLER

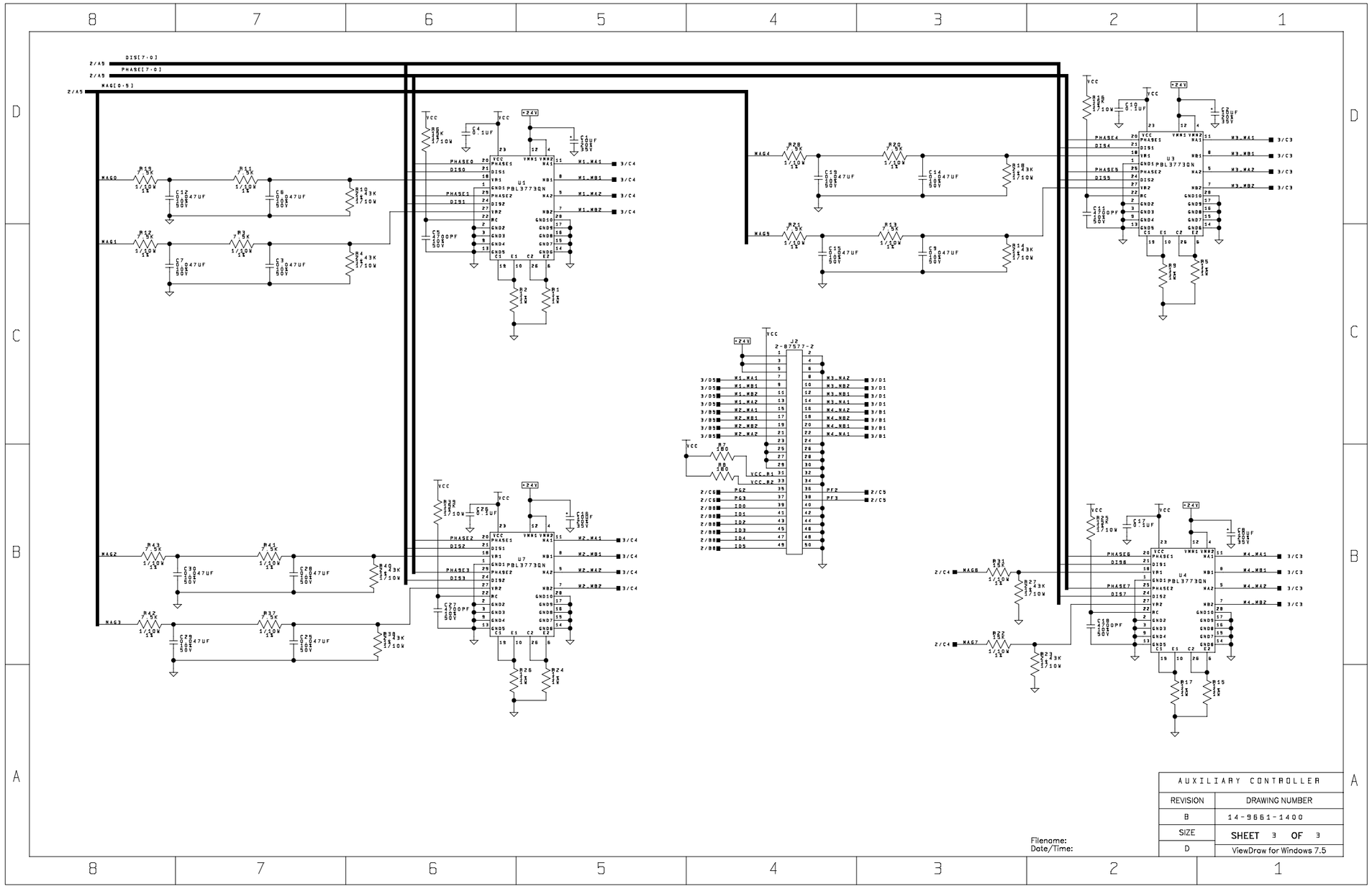
SIZE	REVISION	DRAWING NUMBER
D	B	14-9661-1400

SHEET 1 OF 3

Auxiliary Controller Schematic (cont.)



Auxiliary Controller Schematic (cont.)



Main Controller Schematic

REVISIONS			
REV	DESCRIPTION	DATE	APPD
--	Released per EO #06405	10/7/99	T.W.
A	Revised per EO #06415	1/26/00	T.W.
B	Revised per EO #06420	3/7/00	T.W.
C	Revised per EO #06421	9/18/00	T.W.
D	Revised per EO #06435		

Notes:

Unless Otherwise specified.
1. All capacitor values are microfarads.
2. All resistor values are ohms.
3. Capacitors are 50V, 20%.
4. Resistors are 1/10W 5%.

Power and ground symbols used.

Vcc (+5V Logic power)

Vee (-5V Logic power)

+24V (+24V Power)

Gnd (Logic ground)

Reference Designators

Last Used	Not Used
C42	
D11	
F1	
J11	
L1	
PTC7	
R43	
S6	
U23	U12
VR1	
Y1	
Z4	

Filename: VLFS_MAIN_CONTROL
Date/Time: 9-26-2000_13:47

NEXT ASSY	24-9661-1225	DRAWN BY T. WALSH		VARI*LITE® 201 REGAL ROW DALLAS, TEXAS 75247
PCB NO.	11.9661.1225	DSN	T.W.	10/7/99	MAIN CONTROLLER
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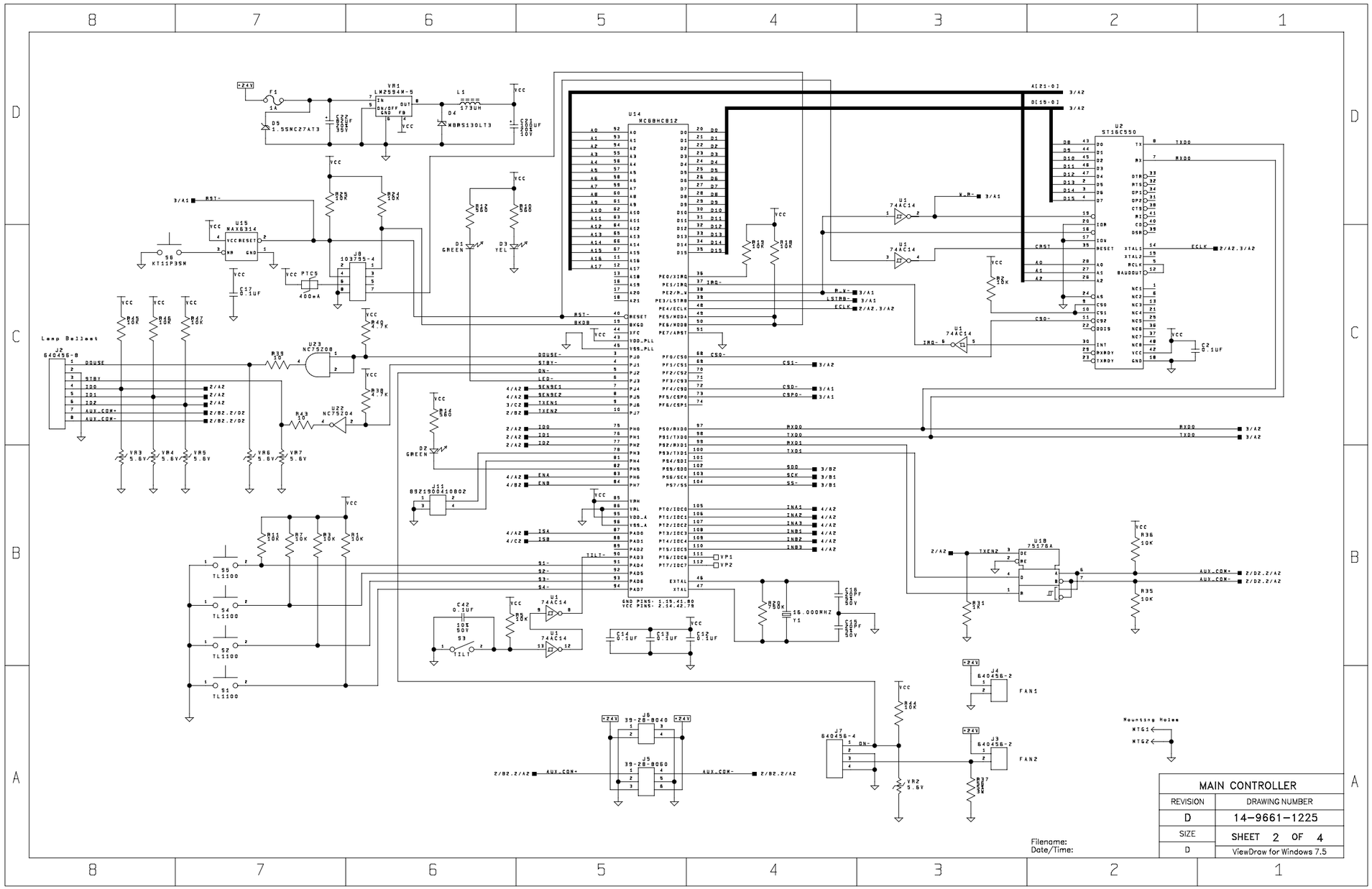
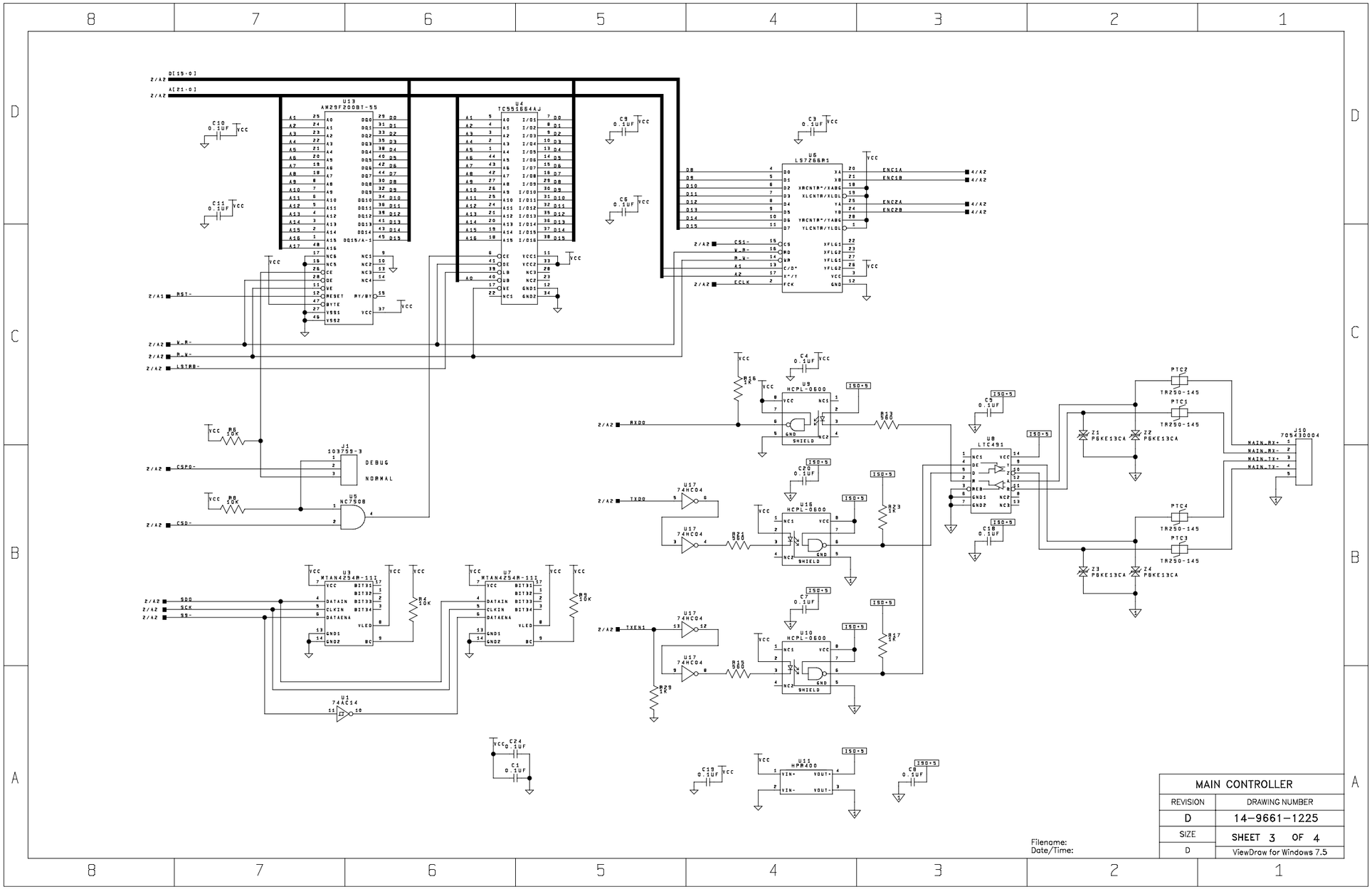
		DOC			
		MFG			
		ViewDraw for Windows 7.5			SHEET 1 OF 4

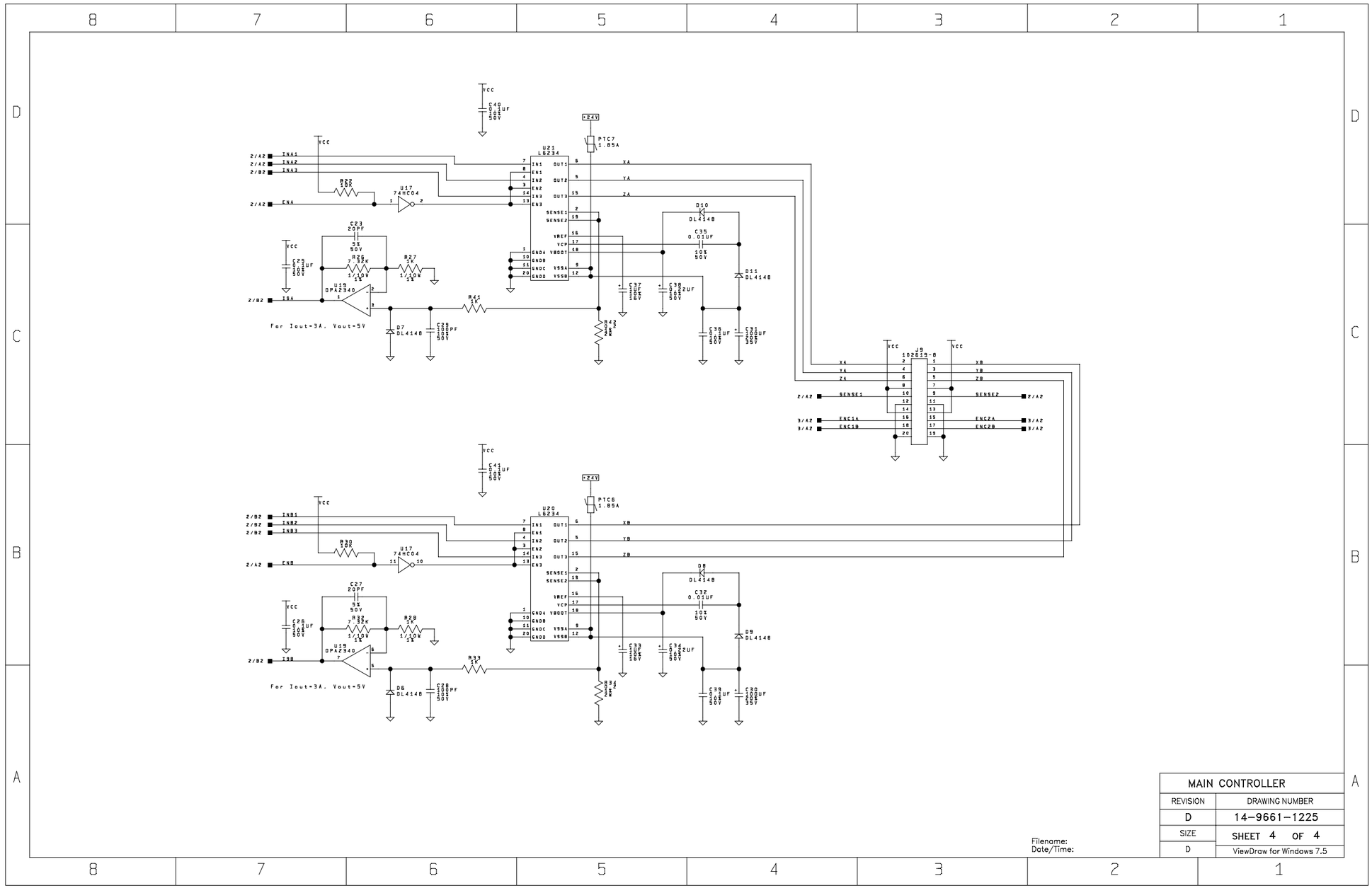
Main Controller Schematic (cont.)



Main Controller Schematic (cont.)



Main Controller Schematic (cont.)



DMX Input Schematic

REVISIONS			
REV	DESCRIPTION	DATE	APPD
--	Released per EO #04542	9/7/99	T.W.
A	Revised per EO #06413	1/18/00	T.W.
B	Revised per EO #06415	1/26/00	T.W.
C	Revised per EO #06422	3/13/00	T.W.
D	Revised per EO #06423		

Notes:

Unlesss Otherwise specified.
1. All capacitor values are microfarads.
2. All resistor values are ohms.
3. Capacitors are 50V, 20%.
4. Resistors are 1/10W 5%.

Power and ground symbols used.

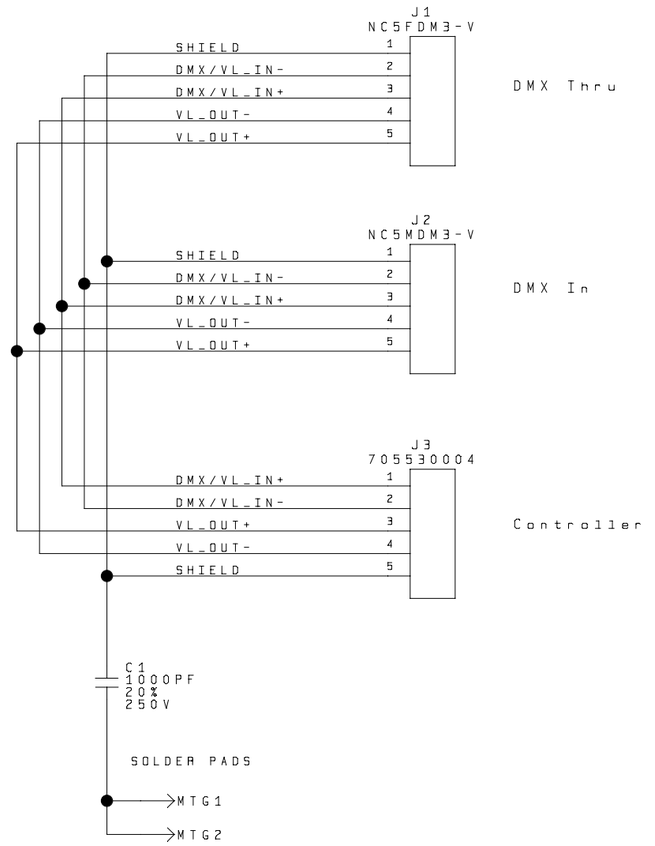
VCC — Vcc (+5V Logic power)

VEE — Vee (-5V Logic power)

Gnd (Logic ground)

Reference Designators

Last Used	Not Used
C1	
J3	



Filename: VLFS_DMX_INPUT
Date/Time: 4-3-2000_11:50

NEXT ASSY	24-9661-1251	DRAWN BY TOM WALSH		VARI∗LITE® 201 REGAL ROW DALLAS, TEXAS 75247
PCB NO.	11.9661.1251	DSN	T.W.	9/99
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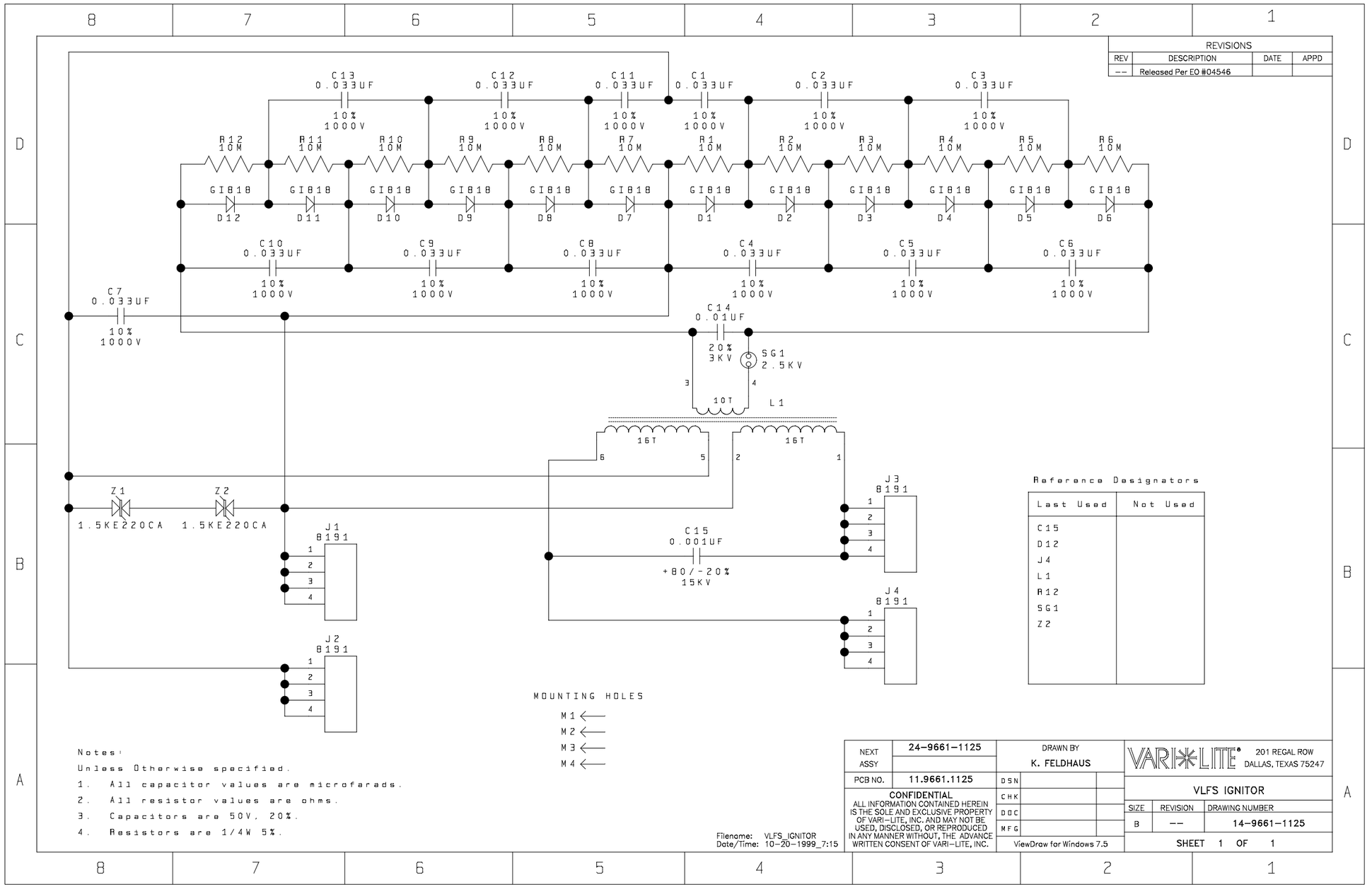
		DOC		SIZE: B; REVISION: D; DRAWING NUMBER: 14-9661-1251
		MFG		SHEET 1 OF 1
		ViewDraw for Windows 7.5		

Ignitor Schematic



SCR Schematic

REVISIONS			
REV	DESCRIPTION	DATE	APPD
--	Released per EO #04544	9/14/99	J.C.
A	Revised per EO #06401	9/23/99	J.C.
B	Revised per EO #06404	10/20/99	J.C.
C	Revised per EO #06457	5/19/00	J.C.
D	Revised per EO #06427		

Notes:

Unlesss Otherwise specified.
1. All capacitor values are microfarads.
2. All resistor values are ohms.
3. Capacitors are 50V, 20%.
4. Resistors are 1/10W 5%.

Power and ground symbols used.

Vcc Vcc (+5V Logic power)

Vee Vee (-5V Logic power)

Gnd (Logic ground)

Reference Designators

Last Used	Not Used
BR2	
C21	
D5	
J14	J11
L2	
Q1	
R31	
T2	
U11	
VR1	
Y1	

Filename: VLFS_SCR
Date/Time: 8-10-2000_9:50

NEXT ASSY	24-9661-1320	DRAWN BY	T.E. WALSH	
PCB NO.	11.9661.1320	DSN	J. COVINGTON	9/99
		CHK	J. COVINGTON	9/99
		DOC		
		MFG		

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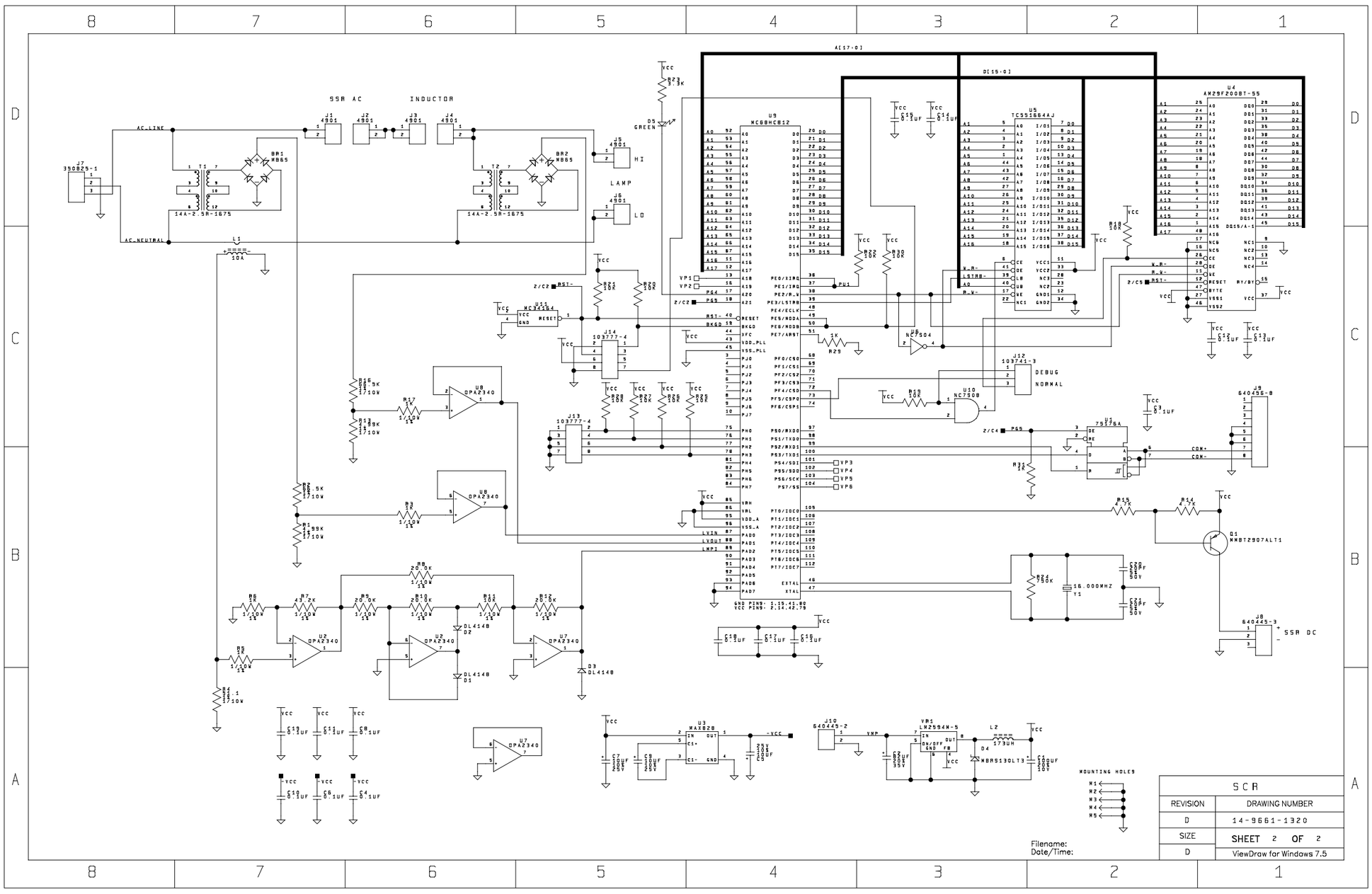
ViewDraw for Windows 7.5

VARI∗LITE® 201 REGAL ROW DALLAS, TEXAS 75247

SCR

SIZE	REVISION	DRAWING NUMBER
D	D	14-9661-1320

SHEET 1 OF 2

SCR Schematic (cont.)